

Emmanuel O. Agu, PhD

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Updated December 29, 2023

BACKGROUND

Academic Experience

- Harold L. Jurist '61 and Heather E. Jurist Dean's Professor, Nov 2021 - Date
- Professor,
 - Computer Science Dept., Worcester Polytechnic Inst. (WPI), July 2018 – Date
 - Electrical & Computer Engineering Dept., WPI, July 2018 – Date
 - Biomedical Engineering, WPI, July 2018 – Date
 - Robotics Engineering, WPI, July 2018 - Date
 - Interactive Media & Game Development (IMGD) Program, WPI, July 2018 – Date
 - Bioinformatics & Computational Biology Program, WPI, July 2018 – Date
 - Data Science Program, WPI, (Affiliated), July 2018 – Date
 - Science, Engineering, and Innovation for Global Development Program, WPI Global School, January 2020 - Date
- Associate Professor,
 - Computer Science Dept., Worcester Poly. Inst. (WPI), July 2008 – June 2018
 - Electrical & Computer Engineering Dept., WPI, July 2015 – June 2018
 - Biomedical Engineering, WPI, December 2017 – June 2018
 - Robotics Engineering, WPI, January 2018 – June 2018
 - Interactive Media & Game Dev. (IMGD) Program, WPI, July 2008 – June 2018
 - Bioinformatics & Computational Biology Program, WPI, July 2011 – June 2018
 - Data Science Program, WPI, (Affiliated), July 2013 – June 2018
- Assistant Professor,
 - Computer Science Dept., WPI, July 2002 – 2008.
 - Interactive Media & Game Development (IMGD) Program, WPI, July 2005 - 2008
- Visiting Assistant Professor, HRTA Department, School of Management, University of Massachusetts, Amherst, Spring 2002.

Education

1. PhD. in Electrical & Computer Engineering, Univ of Massachusetts, Amherst MA, Sept 2001
Doctoral Dissertation: Diffraction Shading Models for Iridescent Surfaces.
Advisor: Francis. S Hill Jr.
2. M.S. in Electrical & Computer Engineering, Univ of Massachusetts, Amherst MA, May 1996
Master's Thesis: Wireless Local Area Networks Medium Access Control Protocols.
Advisor: Aura Ganz
3. B.Eng., Electrical & Electronics Engineering, University of Benin, Nigeria, April 1994
Undergraduate Thesis: Design and Implementation of a 6-bit Digital Adder,
Advisor: John Igimoh

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Updated December 29, 2023

Work Experience

Aug 2008 – Dec 2009 Consultant, Raytheon, Marlborough, MA (On sabbatical leave from WPI)
May 2008 – Nov 2008 Consultant, Fidelity Investments, Boston (On sabbatical leave from WPI)
Sept. 1997 - Aug. 2001 Research Assistant, Electrical and Computer Engr Dept., University of Massachusetts, Amherst, MA
June-Aug. 1998 Graduate Research Intern, Philips Research, BriarCliff, New York
June-Aug. 1997 Graduate Research Intern, Nokia Research Center, Burlington, MA
Oct 1994 – Sept 1997 Research Assistant, Wireless Multimedia LAN Group, Electrical and Computer Engineering Dept., University of Massachusetts-Amherst.
May-Oct 1992; Sept – Oct. 1991 Engineering Undergraduate Intern, Tara Systems, Lagos, Nigeria,

Consulting

Oct. – Nov. 2005. Consultant and Expert Witness, Mintz Levin law firm, Boston, MA.
2006 - 2010 Technical and Operations Consultant, UDC Company Limited, Nigeria
October 2007 Consultant, Fanny Mlinarsky, Startup Company on Virtual Fashion

Entrepreneurship Experience

2010 – 2020 Senior Advisor on tech. and business strategy, Public Vine, hypergrowth fintech company
2017 – Date Senior Advisor on technical and global strategy, WUC technology, data storage startup
2006 - 2010 Technical and Operations Consultant & Advisor, UDC Company, tech. startup
Aug – Dec 2008 Consultant on GPU technologies, Raytheon, Marlborough, MA
May – Dec 2008 Technical Consultant on GPU technologies, Capital Markets Group, Fidelity Investments
May 1998 – Dec. 1999 Founding Director/CTO, Shoploco.com, Internet shopping portal startup
Mar. 1999 – Nov. 2002 Founding CTO, COO & Interim CEO, Entertainment Communities Online (ECO)
Feb – May 2002 Founding Director, CTO, CEO, Halogenix Corp, Global outsourcing company

Demographic Information

Languages: English, Ibo (Nigerian language), French (rudimentary)
Citizenship US and Nigerian (Dual citizen)
Ethnicity Nigerian American

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SCHOLARSHIP

Research Interests

Mobile and Ubiquitous Computing, Mobile Health, Mobile sensing, Computer Graphics

List of Publications

(Legend: Undergraduate co-authors are underlined; graduate co-authors are bold + underlined)

Book Chapters

- BC1 Emmanuel Agu, Amorn Chokchaisiripakdee, Nuttaworn Sujumnong, Latthapol Krachonkitkosol, Bengisu Tulu, Making Exergames Appealing: An Assessment of Commercial Exergames, *Handbook of Research on Holistic Perspectives in Gamification for Clinical Practice*, Chapter 14, IGI Global Publishers, 2015
- BC2 **Fan Wu**, Emmanuel Agu, **Clifford Lindsay** and Chung-han Chen, On Balancing Energy Consumption, Rendering Speed, and Image Quality on Mobile Devices, *Emergent Trends in Personal, Mobile, and Handheld Computing Technologies*, Chapter 14, IGI Global Publishers, 2012 (20 pp).
- BC3 **Fan Wu**, Emmanuel Agu, **Clifford Lindsay**, and Chung-Han Chen, UbiWave: A Novel Energy-Efficient End-to-End Solution for Mobile 3D Graphics, *Handheld Computing for Mobile Commerce: Applications, Concepts and Technologies* IGI Global Publishers, 2010.

Journals

- J1 **Wen Ge**, **Guanyi Mou**, Emmanuel Agu and Kyumin Lee, Deep Heterogeneous Contrastive Hyper-Graph Learning for In-the-Wild Context-Aware Human Activity Recognition, Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT), (conditionally accepted)
- J2 **Hamza Abujrida**, Emmanuel Agu and Kaveh Pahlavan, 2023. DeepaMed: Deep learning-based medication adherence of Parkinson's disease using smartphone gait analysis. *Smart Health*, 30, p.100430.
- J3 Monica Ahluwalia, Jacques Kpodonu, Emmanuel Agu, 2023. Risk Stratification in Hypertrophic Cardiomyopathy: Leveraging Artificial Intelligence to Provide Guidance in the Future. *JACC: Advances*, 2(7), p.100562.
- J4 **Apiwat Ditthapron**, Adam C. Lammert, and Emmanuel O. Agu, 2023. Multi-task Deep Learning Methods for Improving Human Context Recognition from Low Sampling Rate Sensor Data. *IEEE Sensors Journal*.
- J5 **Apiwat Ditthapron**, Adam Lammert, Emmanuel Agu. ADL-GAN: Data Augmentation to Improve In-the-wild ADL Recognition using GANs. *IEEE Access*.
- J6 **Atifa Sarwar**, Emmanuel Agu, and **Abdulsalam Alamadani** 2023. CovidRhythm: A Deep Learning Model for Passive Prediction of Covid-19 Using Biobehavioral Rhythms Derived from Wearable Physiological Data. *IEEE Open Journal of Engineering in Medicine & Biology*, 4, pp.21-30.

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Updated December 29, 2023

- J7 **Ziyang Liu**, Emmanuel Agu, Peder Pedersen, Clifford Lindsay, Bengisu Tulu and Diane Strong, Chronic Wound Image Augmentation and Assessment using Semi-Supervised Progressive Multi-Granularity EfficientNet, IEEE Open Journal of Engineering in Medicine & Biology (OJEMB), 2023.
- J8 **Ruojun Li**, Emmanuel Agu, **Atifa Sarwar**, Kristin Grimone, Debra Herman, Ana Abrantes and Michael Stein, Fine-Grained Intoxicated Gait Classification using a Bi-Linear CNN, IEEE Sensors Journal, 2023.
- J9 **Walter Gerych**, **Luke Buquicchio**, **Kavin Chandrasekaran**, **Hamid Mansoor**, Emmanuel Agu, Elke Rundensteiner, 2023. Domain Adaptation Methods for Lab-to-Field Human Context Recognition. *Sensors*, 23(6), p.3081.
- J10 **Hamid Mansoor**, **Walter Gerych**, **Abdulaziz Alajaji**, **Luke Buquicchio**, **Kavin Chandrakasekaran**, Emmanuel Agu, Elke Rundensteiner, Angela Rodriguez, 2023. 2023. INPHOVIS: Interactive visual analytics for smartphone-based digital phenotyping. *Visual Informatics*.
- J11 **David Clement**, Emmanuel Agu, Muhammad Suleiman, John Obayemi, Steve Adeshina and Wole Soboyejo, Multi-class breast cancer histopathological image classification using multi-scale pooled image feature representation (mpifr) and one-versus-one support vector machines. *Applied Sciences*, 13(1), p.156.
- J12 **Wafaa S. Almuhammadi**, Emmanuel Agu, Jean King, Patricia Franklin, OA-Pain-Sense: Machine Learning Prediction of Hip and Knee Osteoarthritis Pain from IMU Data, In *Informatics* (Vol. 9, No. 4, p. 97). Multidisciplinary Digital Publishing Institute (MDPI)
- J13 Monica Ahluwalia, MD FACC, Anekwe Onwuanyi, MD, Emmanuel Agu, PhD, Jacques Kpodonu, MD FACC, Advocating for a Path to Increase Diversity in Enrollment in Cardiovascular Clinical Trials. *JACC: Advances*, 1(5), p.100152.
- J14 **Zhuoran Su**, Kaveh Pahlavan, Emmanuel Agu and Haowen Wei, 2022. Proximity Detection During Epidemics: Direct UWB TOA Versus Machine Learning Based RSSI, International Journal of Wireless Information Networks, 29(4), pp.480-490.
- J15 **David Clement**, Emmanuel Agu, John Obayemi, Steve Adeshina and Wole Soboyejo, Breast Cancer Tumor Classification using a Deep Bag of Deep Multi-Resolution Convolutional Features (BoDMCF), MDPI Informatics, (Vol. 9, No. 4, p. 91). MDPI.
- J16 **Ziyang Liu**, **John Josvin** and Emmanuel Agu, 2022. Diabetic Foot Ulcer Ischemia and Infection Classification using EfficientNet Deep Learning Models, IEEE Open Journal of Engineering in Medicine, and Biology (OJEMB), 3, pp.189-201.
- J17 **Atifa Sarwar**, Emmanuel Agu, **Justin Polcari**, **Jack Cirolì**, Benjamin Nephew, and Jean King, 2022. PainRhythms: Machine learning prediction of chronic pain from circadian dysregulation using actigraph data—a preliminary study. *Smart Health*, 26, p.100344.
- J18 **Florina Asani**, **Bhoomi Patel**, **Srinarayan Srikanthan**, Emmanuel Agu, 2023. BioscoreNet: Traumatic Brain Injury (TBI) detection using a multimodal self-attention fusion neural network and a passive bioscore monitoring framework from smartphone sensor data. *Smart Health*, 27, p.100352.
- J19 A M Abrantes, L Z Meshasha, C E Blevins, C Battle, C Lindsay, E Marsh, S Feltus, M Buman, E Agu and M. D. Stein, A Smartphone Physical Activity App for Patients in Alcohol Treatment: Single-Arm Feasibility Trial. JMIR Formative Research. 2022 Oct 19;6(10): e35926.

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Updated December 29, 2023

- J20 Allison Borges, Celeste Caviness, Ana M. Abrantes, Debra Herman, Kristin Grimone, Emmanuel Agu, and Michael D. Stein, 2023. User-centered preferences for a gait-informed alcohol intoxication app. *Mhealth*, 9.
- J21 Marie Sillice, Michael Stein, Cynthia Battle, Lidia Meshesha, Clifford Lindsay, Emmanuel Agu, and Ana Abrantes, 2022. Exploring factors associated with mobile phone behaviors and attitudes toward technology among adults with alcohol use disorder and implications for mhealth interventions: exploratory study. *JMIR formative research*, 6(8), p.e32768
- J22 **Apiwat Ditthapron**, Adam Lammert, Emmanuel Agu, 2022. Continuous TBI Monitoring from Spontaneous Speech Using Parametrized Sinc Filters and a Cascading GRU. *IEEE Journal of Biomedical and Health Informatics*, 26(7), pp.3517-3528.
- J23 **Oleksandr Semenov**, Emmanuel Agu, Kaveh Pahlavan and Zhuoran Su, 2022. Covid-19 social distance proximity estimation using machine learning analyses of smartphone sensor data. *IEEE Sensors Journal*, 22(10), pp.9568-9579
- J24 **Qian He** and Emmanuel Agu, 2022. Context-aware probabilistic models for predicting future sedentary behaviors of smartphone users. *Journal of Healthcare Informatics Research*, pp.1-41.
- J25 Edwin Boudreaux, Elke Rundensteiner, Feifan Liu, Bo Wang, Celine Larkin, Emmanuel Agu, Samiran Ghosh, Joshua Semeter, Gregory Simon, Rachel Davis-Martin, 2021. Applying machine learning approaches to suicide prediction using healthcare data: overview and future directions. *Frontiers in psychiatry*, 12, p.707916
- J26 **Hamid Mansoor**, **Walter Gerych**, **Luke Buquicchio**, **Kavin Chandrakasekaran**, Elke Rundensteiner, Emmanuel Agu, 2021. ARGUS: Interactive visual analysis of disruptions in smartphone-detected Bio-Behavioral Rhythms. *Visual Informatics*, 5(3), pp.39-53.
- J27 **Ziyang Liu**, Emmanuel Agu, Peder Pedersen, Clifford Lindsay, Bengisu Tulu, Diane Strong, 2021. Comprehensive assessment of fine-grained wound images using a patch-based CNN with context-preserving attention. *IEEE open journal of engineering in medicine and biology*, 2, pp.224-234.
- J28 **Zhuoran Su**, Kaveh Pahlavan, Emmanuel Agu, 2021. Performance evaluation of COVID-19 proximity detection using bluetooth LE signal. *IEEE access*, 9, pp.38891-38906
- J29 **Apiwat Ditthapron**, Emmanuel Agu, Adam Lammert, 2021. Privacy-preserving deep speaker separation for smartphone-based passive speech assessment. *IEEE Open Journal of Engineering in Medicine and Biology*, 2, pp.304-313
- J30 **Hamid Mansoor**, **Walter Gerych**, **Luke Buquicchio**, **Kavin Chandrakasekaran** Emmanuel Agu, Elke Rundensteiner, 2021. Visual analytics of smartphone-sensed human behavior and health. *IEEE Computer Graphics and Applications*, 41(3), pp.96-104.
- J31 **Ruojun Li**, **Ganesh Balakrishnan**, **Jiaming Nie**, **Yu Li**, Emmanuel Agu, Kristine Grimone, Debra Herman, Ana Abrantes, Michael Stein, 2021. Estimation of blood alcohol concentration from smartphone gait data using neural networks. *IEEE Access*, 9, pp.61237-61255.
- J32 **Abdulaziz Alajaji**, **Walter Gerych**, **Luke Buquicchio**, **Kavin Chandrasekaran**, **Hamid Mansoor**, Emmanuel Agu, and Elke Rundensteiner, 2021. Smartphone health biomarkers: Positive unlabeled learning of in-the-wild contexts. *IEEE Pervasive Computing*, 20(1), pp.50-61
- J33 Bengisu Tulu, Diane Strong, Emmanuel Agu and Peder Pedersen, 2020. Search and Evaluation of Coevolving Problem and Solution Spaces in a Complex Healthcare Design Science Research Project. *IEEE Transactions on Engineering Management*.

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Updated December 29, 2023

- J34 **Holly Nguyen**, Emmanuel Agu, Bengisu Tulu, Diane Strong, **Haadi Mombini**, Peder Pedersen, Clifford Lindsay, Raymond Dunn, Lorraine Loretz, Machine Learning Classification of Actionable Care Decisions on Lower Extremity Wounds, Elsevier Smart Health, 18, p.100139.
- J35 **Ameva Wagh**, **Shubham Jain**, Apratim Mukherjee, Emmanuel Agu, Peder Pedersen, Diane Strong, Bengisu Tulu, Clifford Lindsay and **Ziyang Liu**, Semantic Segmentation of Smartphone Wound Images: Comparative Analysis of AHRF and CNN-Based Approaches, *IEEE Access*, vol. 8, pp. 181590-181604, 2020, doi: 10.1109/ACCESS.2020.3014175.
- J36 **Ada Dogrucu**, **Alex Perucic**, **Anabella Isaro**, **Damon Ball**, **Ermal Toto**, Elke Rundensteiner, Emmanuel Agu, Rachel Davis-Martin, and Edwin Boudreaux, Moodable: Instantaneous Depression Assessment using Machine Learning on Voice Samples and Retrospectively Harvested Smartphone and Social Media Data, Elsevier Smart Health Journal, vol 17, July 2020.
- J37 **Xixuan Zhao**, **Ziyang Liu**; Emmanuel Agu; **Ameva Wagh**; **Shubham P Jain**; Clifford Lindsay; Bengisu Tulu; Diane Strong; Jiangming Kan, Fine-grained diabetic wound depth and granulation tissue amount assessment using bilinear convolutional neural network, *IEEE Access* 7 (2019): 179151-179162.
- J38 **Hamza Abujrida**, Emmanuel Agu, Kaveh Pahlavan, Machine Learning-based Motor Assessment of Parkinson's Disease Using Postural Sway, Gait and Lifestyle Features on Crowdsourced Smartphone Data, *Biomedical Physics and Engineering Express Journal* 2019.
- J39 **Lei Wang**, Peder C. Pedersen, Emmanuel Agu, Diane Strong, Bengisu Tulu, **Qian He**, Boundary determination of foot ulcer images by applying the Associative Hierarchical Random Field framework, *Journal of Medical Imaging e Analysis*, no. 2 (2019): 024002.
- J40 Sherry Pagoto, Bengisu Tulu, Emmanuel Agu, Molly E. Waring, Jessica L. Oleski, and Danielle E. Jake-Schoffman. "Using the habit app for weight loss problem solving development and feasibility study." *JMIR mHealth and uHealth* 6, no. 6 (2018): e145.
- J41 Ana Abrantes, Claire Blevins, Clifford Lindsay, Cynthia L. Battle, Matthew P. Buman, Emmanuel Agu, and Michael Stein. "Formative work in the development of a physical activity smartphone app targeted for patients with alcohol use disorders." *Psychology of Sport and Exercise* 41 (2019): 162-171.
- J42 **Maryam Hasan**, Elke Rundensteiner, Emmanuel Agu, Automatic Emotion Detection in Text Streams by analyzing Twitter Data", *Springer Int'l Journal of Data Science and Analytics*, February 2019, Volume 7, Issue 1, pp 35–51.
- J43 **Charles Lovering**, **Anqi Lu**, **Cuong Nguyen**, **Huyen Nguyen**, David Hurley and Emmanuel Agu, (2018). Fact or fiction. *Proceedings of the ACM on Human-Computer Interaction*, 2(CSCW), 111.
- J44 Sherry Pagoto, Jessica Oleski, Molly E Waring, Emmanuel Agu and Bengisu Tulu, Habit App: Feasibility of a Weight Loss Problem Solving App, *Annals Behavioral Medicine*, 2017
- J45 **Maryam Hasan**, Elke Rundensteiner, Xiangnan Kong and Emmanuel Agu, Discover Trends in Public Emotion using Social Sensing, *ACM SIGWeb Newsletter*. Spring, Article 2 (March 2017), 5 pages.
- J46 **Lei Wang**, Peder C. Pedersen, Emmanuel Agu, Diane Strong, Bengisu Tulu, **Qian He**, Area determination of diabetic foot ulcer images using a cascaded two-stage SVM based classification, *IEEE Transactions on Biomedical Engineering*, vol. 64, no. 9, pp. 2098-2109, Sept. 2017.

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Updated December 29, 2023

- J47 **Xiaochen Huang** and Emmanuel Agu (2016) A Speech-Based Mobile App for Restaurant Order Recognition and Low-Burden Diet Tracking. In: Zheng X., Zeng D., Chen H., Leischow S. (eds) *Smart Health. Springer Lecture Notes in Computer Science*, vol 9545, pp 333-339
- J48 Kaveh Pahlavan, **Yishuang Geng**, **Guanqun Bao**, **Liang Mi**, Emanuel Agu, David R. Cave, Andrew Karellas, Vahid Tarokh, Kamran Sayrafian, A Novel CyberPhysical System (CPS) for 3D Imaging of the Small Intestine in Vivo, *IEEE Access Journal*, vol 3, Dec 2015, pp 2730-2742
- J49 **Lei Wang**, Peder C. Pedersen, Diane M. Strong, Bengisu Tulu, Emmanuel Agu, Ron Ignatz, **Qian He**, An automatic assessment system of diabetic foot ulcers based on wound area determination, color segmentation and healing score evaluation, *Journal of Diabetes Technology and Science*, volume 10, Issue 2, 2016
- J50 **Lei Wang**, Peder C. Pedersen, Diane Strong, Bengisu Tulu, Emmanuel Agu and Ronald Ignatz, Smartphone Based Wound Assessment System for Patients with Diabetics, *IEEE Transactions on Biomedical Engineering* vol. 62, no.2, February 2015.
- J51 **Che Sun** and Emmanuel Agu (2015) Many-Lights Real Time Global Illumination Using Sparse Voxel Octree. In: Bebis G. et al. (eds) *Advances in Visual Computing. Springer Lecture Notes in Computer Science*, vol 9475, pages 150-159
- J52 **Qian He**, Emmanuel Agu, Diane Strong, Bengisu Tulu, Peder Pedersen, **Lei Wang**, The Design, Architecture and Implementation of Sugar, an Android Smartphone App for Advanced Diabetes, in Proceedings book of Diabetes Technical Meeting 2013, in *Journal of Diabetes Science and Technology*
- J53 **Clifford Lindsay** and Emmanuel Agu (2014) 3D Previsualization Using a Computational Photography Camera. In: Bebis G. et al. (eds) *Advances in Visual Computing. ISVC 2014. Lecture Notes in Computer Science*, vol 8888, pp 904-914
- J54 **Clifford Lindsay** and Emmanuel Agu (2014) Automatic Multi-Light White Balance Using Illumination Gradients and Color Space Projection. In: Bebis G. et al. (eds) *Advances in Visual Computing. ISVC 2014. Springer Lecture Notes in Computer Science*, vol 8887, pp 579-588
- J55 **Damon Blanchette** and Emmanuel Agu, Real-Time Dispersive Refraction with Adaptive Spectral Mapping, *Int'l Journal on Artificial Intelligence Tools* 22, 1360019 (2013)
- J56 **Karen Works**, Elke A. Rundensteiner, and Emmanuel Agu, Optimizing Adaptive Multi-Route Query Processing via Time-Partitioned Indices, *Journal of Computer and System Sciences (JCSS)*, Special Issue, "Data Warehousing and Knowledge Discovery from Sensors and Streams", vol 79, issue 3, May 2013, pp 330-348, Elsevier Publisher.
- J57 **Damon Blanchette** and Emmanuel Agu (2012) Adaptive Spectral Mapping for Real-Time Dispersive Refraction. In: Bebis G. et al. (eds) *Advances in Visual Computing. ISVC 2012. Springer Lecture Notes in Computer Science*, vol 7431. Berlin, Heidelberg.
- J58 Diane Strong, Emmanuel Agu, Peder Pedersen and Bengisu Tulu, *Pocket Doctor*, In Patient Care Magazine, Issue 10, 2012, pp 35-37
- J59 **Fan Wu**, Emmanuel Agu, **Clifford Lindsay**, and Chung-han Chen, On Balancing Energy Consumption, Rendering Speed, and Image Quality on Mobile Devices. *Int'l Journal of Handheld Computing Research*, July 2010.
- J60 **Fan Wu**, Emmanuel Agu, **Clifford Lindsay** and Chung-han Chen, Imperceptible Simplification on Mobile Displays, *Int'l Journal of Handheld Computing Research* (3)1, 2012

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Updated December 29, 2023

- J61 R. Bartoš, S. G. Chappell, R. J. Komerska, M. Haag, S. Mupparapu, E. Agu, and I. Katz, "Development of routing protocols for the Solar-powered Autonomous Underwater Vehicle (SAUV) platform," *Wireless Communications and Mobile Computing*, Vol.8, No.8, pp. 1075-1088, Aug. 2008.
- J62 Fan Wu, Emmanuel Agu, Clifford Lindsay, (2008) Adaptive CPU Scheduling to Conserve Energy in Real-Time Mobile Graphics Applications. In: Bebis G. et al. (eds) *Advances in Visual Computing. ISVC 2008. Springer Lecture Notes in Computer Science*, vol 5358, Berlin, Heidelberg, pp 624-633
- J63 William West and Emmanuel Agu, Experimental Evaluation of Energy-based Denial-of-Service Attacks in Wireless Networks, *IJCSNS Int'l Journal of Computer Science and Network Security*, VOL.7 No.6, June 2007
- J64 Clifford Lindsay and Emmanuel Agu. (2006) Physically-Based Real-Time Diffraction Using Spherical Harmonics. In: Bebis G. et al. (eds) *Advances in Visual Computing. ISVC 2006. Springer Lecture Notes in Computer Science*, vol 4291. Berlin, Heidelberg Pp 505-517.
- J65 Fan Wu and Emmanuel Agu, Multiresolution Graphics on Ubiquitous Displays Using Wavelets, *Int'l Journal of Virtual Reality*, volume 5(3): 9-15, September 2006.
- J66 Emmanuel Agu, Kutty Banerjee, Shirish Nilekar, Oleg Rekutin, Diane Kramer, A Middleware Architecture for Mobile 3D Graphics", *Int'l Journal of Parallel, Emergent and Distributed Systems (IJPEDS)*, special issue on mobile distributed computing", Volume 21, Issue 3, June 2006.
- J67 Emmanuel Agu and Francis S Hill (2003) A Simple Method for Ray Tracing Diffraction. In: Kumar V., Gavrilova M.L., Tan C.J.K., L'Ecuyer P. (eds) *Computational Science and Its Applications — ICCSA 2003. ICCSA 2003. Springer Lecture Notes in Computer Science*, vol 2669. Berlin, Heidelberg Pages 336-345.

Conferences and Workshops

- C1 Walter Gerych, Kevin Hickey, Thomas Hartvigsen, Luke Buquicchio, Abdulaziz Alajaji, Kavin Chandrasekaran, Hamid Mansoor, Emmanuel Agu, and Elke Rundensteiner, Stabilizing Adversarial Training for Generative Networks, Proc IEEE Big Data 2023, Special Session on Machine Learning on Big Data (accepted, to appear)
- C2 Apiwat Dittrapon, Emmanuel Agu, Peder Pedersen, Clifford Lindsay, Bengisu Tulu and Diane Strong, On Rejecting Low Quality Images to Improve Deep Smartphone Wound Assessment, IEEE International Conference on Machine Learning Applications (ICMLA), special session on health, 2024 (Accepted, to appear)
- C3 Walter Gerych, Kevin Hickey, Luke Buquicchio, Kavin Chandrasekaran, Abdulaziz Alajaji, Elke Rundensteiner, and Emmanuel Agu, 2023, November. Debiasing Pretrained Generative Models by Uniformly Sampling Semantic Attributes. In *Thirty-seventh Conference on Neural Information Processing Systems (NeurIPS)*.
- C4 Apiwat Dittrapon, Adam Lammert, Emmanuel Agu, Masking Kernel for Learning Energy-Efficient Representations for Speaker Recognition and Mobile Health, Proc INTERSPEECH 2023, pages 2843-2847.
- C5 Joshua Audibert, Elijah Gonzalez, Ryan Orlando, Nicholas Wong, Emmanuel Agu and Mark Claypool, Machine Learning Prediction of Just Dance Enjoyment from Mobile Sensor Data,

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Updated December 29, 2023

Machine Learning Prediction of Just Dance Exergame Enjoyment from Mobile Sensor Data. In *2023 IEEE Conference on Games (CoG)* (pp. 1-8). IEEE.

- C6 **Abdulaziz Alajaji**, **Kavin Chandrasekaran**, **Luke Buquicchio**, **Walter Gerych**, Emmanuel Agu, and Elke Rundensteiner, 2023, June. Adversarial Human Context Recognition: Evasion Attacks and Defenses. In *2023 IEEE 47th Annual Computers, Software, and Applications Conference (COMPSAC)* (pp. 223-232). IEEE (best paper award)
- C7 **Hamid Mansoor**, **Walter Gerych**, **Abdulaziz Alajaji**, **Luke Buquicchio**, **Kavin Chandrasekaran**, Emmanuel Agu and Elke Rundensteiner., 2023, June. Population-Level Visual Analytics of Smartphone Sensed Health and Wellness Using Community Phenotypes. In *2023 IEEE 11th International Conference on Healthcare Informatics (ICHI)* (pp. 420-429). IEEE.
- C8 **Wen Ge**, **Guanyi Mou**, Emmanuel Agu and Kyumin Lee, Heterogeneous Hyper-Graph Neural Networks for Human Context Recognition, In *2023 IEEE International Conference on Pervasive Computing and Communications Workshops and other Affiliated Events (PerCom Workshops)* (pp. 350-354). IEEE.
- C9 Joshua DeOliveira, **Walter Gerych**, **Aruzhan Koshkarova**, Elke Rundensteiner, and Emmanuel Agu, 2022, December. HAR-CTGAN: A Mobile Sensor Data Generation Tool for Human Activity Recognition. In *2022 IEEE International Conference on Big Data (Big Data)* (pp. 5233-5242). IEEE
- C10 **Abdulsalam Almadani**, **Abhishek Shivdeo**, Emmanuel Agu, and Jacques Kpodonu, Deep Video Action Recognition Models for Assessing Cardiac Function from Echocardiograms. In *2022 IEEE International Conference on Big Data (Big Data)* (pp. 5189-5199). IEEE.
- C11 **Hamza Abujrida**, Emmanuel Agu and Kaveh Pahlavan, 2022, December. DeePaGait: Motor Assessment of Parkinson's Disease Using a Multi-Layer 1D Convolutional Neural Network on Smartphone Gait Data. In *2022 IEEE International Conference on Big Data (Big Data)* (pp. 5153-5162). IEEE.
- C12 **Walter Gerych**, Thomas Hartvigsen, **Luke Buquicchio**, Emmanuel Agu, and Elke Rundensteiner, 2022, October. Robust Recurrent Classifier Chains for Multi-Label Learning with Missing Labels. In *Proceedings of the 31st ACM International Conference on Information & Knowledge Management* (pp. 582-591).
- C13 **Abdulaziz Alajaji**, **Walter Gerych**, **Kavin Chandrasekaran**, **Luke Buquicchio**, **Hamid Mansoor**, Emmanuel Agu, Elke Rundensteiner, 2022, March. Triplet-based Domain Adaptation (Triple-DARE) for Lab-to-field Human Context Recognition. In *2022 IEEE International Conference on Pervasive Computing and Communications Workshops and other Affiliated Events (PerCom Workshops)* (pp. 155-161). IEEE.
- C14 **Walter Gerych**, Thomas Hartvigsen, **Luke Buquicchio**, **Kavin Chandrasekaran**, **Abdulaziz Alajaji**, **Hamid Mansoor**, Elke Rundensteiner and Emmanuel Agu, 2022. Positive Unlabeled Learning with a Sequential Selection Bias. In *Proceedings of the 2022 SIAM International Conference on Data Mining (SDM)* (pp. 19-27). Society for Industrial and Applied Mathematics.
- C15 **Wen Ge** and Emmanuel Agu, 2022, January. QCRUFT: Quaternion Context Recognition under Uncertainty using Fusion and Temporal Learning. In *2022 IEEE 16th International Conference on Semantic Computing (ICSC)* (pp. 41-50). IEEE.

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Updated December 29, 2023

- C16 **Walter Gerych, Tom Hartvigsen, Luke Buquicchio**, Emmanuel Agu, Elke Rundensteiner, 2022, June. Recovering the propensity score from biased positive unlabeled data. In *Proceedings of the AAAI Conference on Artificial Intelligence* (Vol. 36, No. 6, pp. 6694-6702).
- C17 **Caitlin Enright, Theodoros Konstantopoulos, Orlando Aviles, Jean-Philippe Pierre**, and Emmanuel Agu, 2021, December. Passive Smartphone Contact Tracing and Continuous COVID-19 Infection Risk Assessment. In *2021 IEEE International Conference on Big Data (Big Data)* (pp. 4675-4686). IEEE.
- C18 **Sayali Shelke** and Emmanuel Agu, TBI2Vec: Traumatic Brain Injury Smartphone Sensing using AutoEncoder Embeddings. In *2021 IEEE International Conference on Big Data (Big Data)* (pp. 4770-4779). IEEE
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Updated December 29, 2023

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Updated December 29, 2023

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Updated December 29, 2023

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- C51 Hamid Mansoor, Walter Gerych, Luke Buquicchio, Kavin Chandrakasekaran, Elke Rundensteiner, Emmanuel Agu, "COMEX: Identifying Mislabeled Human Behavioral Context Data using Data Visual Analytics, in Proc 1st IEEE International Workshop on Deep Analysis of Data Driven Applications (DADA) 2019.
- C52 Haadi Mombini, Bengisu Tulu, Diane Strong, Emmanuel Agu, Holly Ngyuen, Peder Pedersen, Clifford Lindsay, Raymond Dunn and Lorraine Loretz, Design of a Rule-based Decision Model for Assessment of Chronic Wounds, Late Breaking submissions, DESRIST 2019
- C53 Walter Gerych, Emmanuel Agu and Elke Rundensteiner, Classifying Depression in Imbalanced Datasets using an Autoencoder-based Anomaly Detection Approach, in Proc IEEE Conference on Semantic Computing (ICSC) 2019
- C54 Charles Lovering, Anqi Lu, Cuong Nguyen, Huyen Nguyen, David Hurley and Emmanuel Agu, Fact or Fiction: An Application to Subvert Fake News, in Proc Conference for Computer Supported Cooperative Work (CSCW) 2018
- C55 Kai Qian, Dan Chia-Tien Lo, Fan Wu, Emmanuel Agu and Bei-Tseng Chu, Authentic Learning Secure Software Development (SSD) in Computing Education, in Proc. IEEE Frontiers in Education (FIE) Conference, 2018.
- C56 Hamza Abujrida, Emmanuel Agu and Kaveh Pahlavan, Smartphone-Based Gait Assessment to Infer Parkinson's Disease Severity using Crowdsourced Data, in Proc. IEEE-NIH Special Topics Conference on Healthcare Innovations and Point-of-Care Technologies (HI-POCT '17), Washington DC, 2017
- C57 Akshay Thejaswi, Aditya Nivarthi, Daniel Beckwith, Clifford Lindsay and Emmanuel Agu, Detruncation of Attenuation Maps using Neural Networks, IEEE nuclear science symposium and medical imaging conference (NSS/MIC) 2017, oral presentation.
- C58 Andrew McAfee, Jacob Watson, Ben Bianchi, Christina Aiello, Emmanuel Agu, AlcoWear: Detecting Blood Alcohol Levels from Wearables, in Proceedings *IEEE Conference on Ubiquitous Intelligence and Computing (UIC)* 2017
- C59 Qian He and Emmanuel Agu, A Rhythm Analysis-Based Model to Predict Sedentary Behaviors, in Proc. IEEE 2nd Int'l Conference on Connected Health: Applications, Systems and Engineering Technologies (CHASE) 2017, Philadelphia, PA
- C60 Sherry Pagoto, Jessica Oleski, Effie Olendzki, Molly Waring, Emmanuel Agu, Bengisu Tulu, Habit App: Feasibility of a Weight Loss Problem Solving App, abstract in the *Annual meeting of the Society of Behavioral Medicine* 2017, San Diego

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Updated December 29, 2023

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- C62 **Philipp Baumann**, **Anthony Gallo**, Emmanuel Agu and Mark Claypool, Exer-Walls – A Health Alternative to Paywalls in Mobile Games, in Proc *Meaningful Play Conference 2016*
- C63 **Qian He** and Emmanuel Agu, Smartphone Usage Contexts and Sensible Patterns as Predictors of Future Sedentary Behaviors, in Proceedings of the *IEEE-NIH Special Topics Conference on Healthcare Innovations and Point-of-Care Technologies (HI-POCT '16)*, Cancun, Mexico, Nov 9-11, 2016
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- C66 Emmanuel Agu and Mark Claypool, Cypress: A Cyber-Physical Recommender System to Discover Smartphone Exergame Enjoyment, in Proc *Int'l Workshop on Engendering Health with RecSys, co-located with ACM RecSys 2016*, Boston MA.
- C67 **Qian He** and Emmanuel Agu, Towards Sedentary Lifestyle Prevention: An Autoregressive Model for Predicting Sedentary Behaviors, *IEEE Medical Information and Communication Technology Conference (ISMICT)*, Worcester, MA, USA, March 20-23, 2016.
- C68 **Qian He** and Emmanuel Agu, A Frequency Domain Algorithm to Identify Recurrent Sedentary Behaviors from Activity Time-Series Data, *IEEE Int'l Conference on Biomedical and Health Informatics*, Las Vegas, NV, USA on Feb 24-27, 2016.
- C69 Bengisu Tulu, Diane Strong, **Lei Wang**, **Qian He**, Emmanuel Agu, Peder Pedersen, Soussan Djamasbi, Design Implications of User Experience Studies: The Case of a Diabetes Wellness App, in Proc *Hawaiian Int'l Conference on System Sciences (HICSS) 2016*.
- C70 **Xiaochen Huang** and Emmanuel Agu, Location-Dependent Vocabularies and Speaker Style Personalization for Accurate Mobile Diet Recognition, in Proc *IEEE Conference on Healthcare Informatics 2015* (Extended abstract)
- C71 **Qiwen Chen** and Emmanuel Agu, Exploring Statistical GLCM Texture Features for Classifying Food Images, in Proc *IEEE Conference on Healthcare Informatics 2015* (Extended abstract)
- C72 **Zach Arnold**, **Danielle LaRose**, Emmanuel Agu, A Factorial Experiment to Investigate Naturalistic Factors Affecting Smartphone Gait Analysis, in Proc *17th Int'l Conference on e-Health Networking, Applications and Services (Healthcom) 2015* (short paper)
- C73 **Zach Arnold**, **Danielle LaRose**, Emmanuel Agu, Smartphone Inference of Alcohol Consumption Levels from Gait, in Proc *IEEE Conference on Healthcare Informatics 2015*
- C74 **Wei Wang**, **Zhilu Chen**, **Baoyuan Xing**, **Xiaochen Huang**, **Shengwen Han** and Emmanuel Agu, A Smartphone-based Digital Hearing Aid to Mitigate Hearing Loss at Specific Frequencies, in Proc

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Updated December 29, 2023

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- C75 **Qian He**, Emmanuel Agu, Diane Strong and Bengisu Tulu, RecFit: A Context-Aware System for Recommending Physical Activities, in *Proc Workshop on Mobile Medical Applications (MMA) 2014, co-located with ACM Sensys 2014*, Memphis Tennessee
- C76 **Maryam Hasan**, Emmanuel Agu, Elke Rundensteiner, Using Hashtags as Labels for Supervised Learning of Emotions in Twitter Messages, in *SIGKDD Health Informatics Workshop (HI-KDD)*, co-located with *ACM SIGKDD 2014*
- C77 Diane Strong, Bengisu Tulu, Emmanuel Agu, **Qian He**, Peder Pedersen, **Lei Wang**, Ronald Ignatz, Raymond Dunn, Sherry Pagoto and David Harlan, Design of the Feedback Engine for a Diabetes Self-Care Smartphone App, in *Proc Association for Information Systems Conference (AMCIS) 2014*
- C78 **Maryam Hasan**, Elke Rundensteiner and Emmanuel Agu, EMOTEX: Detecting Emotions in Twitter Messages, in *Proc ASE/IEEE Int'l Conference on Social Computing (Socialcom) 2014*
- C79 **Qian He** and Emmanuel Agu, On11: An Activity Recommendation App to mitigate sedentary Lifestyles, in *Physical Analytics Workshop, co-located with ACM Mobisys 2014*
- C80 **Qian He**, Emmanuel Agu, Peder Pederson, Diane Strong and Bengisu Tulu, "Characterizing the Performance and Behaviors of Runners Using Twitter", (full paper) in *Proc IEEE Int'l Conference on Healthcare Informatics (ICHI) 2013*, Philadelphia, PA
- C81 **Minh Hyunh**, **Kevin Lo**, and Emmanuel Agu, On Time-Use Surveys for Ubiquitous Computing Solutions in a Pharmacy Environment, (extended abstract) in *Proc IEEE Int'l Conference on Healthcare Informatics (ICHI) 2013*, Philadelphia, PA
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Updated December 29, 2023

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Updated December 29, 2023

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- C104 Ali Taheri, Arvinder Singh and Emmanuel Agu, Locus: A Tool for Tag-less Location Sensing on 802.11 Wireless LANs with Display in SVG, in Proceedings of *Scalable Vector Graphics (SVG) Open Conference* 2004.
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- C109 Emmanuel Agu and Francis S Hill Jr., " Diffraction Shading Models for Iridescent Surfaces", in Proc. *IASTED Conference on Visualization, Imaging and Image Processing (VIIP)* 2002. Malaga Spain, 2002
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Updated December 29, 2023

Posters

- Po1 **Walter Gerych**, Elke Rundensteiner, Emmanuel Agu, Recurrent Bayesian Classifier Chains for Exact Multi-Label Classification, in Proc NeurIPS 2021
- Po2 **Haadi Mombini**, Emmanuel Agu, Diane Strong, Holly Nguyen, Clifford Lindsay, Lorraine Loretz, Peder Pedersen, Raymond Dunn, Bengisu Tulu, Prediction of Chronic Wound Care Decisions Using Machine Learning, AMIA 2020 Posters
- Po3 Kai Qian, Hossain Shahriar, Fan Wu, Cassandra Thomas and Emmanuel Agu, Broadening Secure Mobile Software Development (SMSD) Through Curriculum Development, Poster Session, *ACM SIGCSE 2017*, Seattle, WA, March 8-11, 2017.
- Po4 Bengisu Tulu, Emmanuel Agu, Stephenie Lemon, Jessica Oleski, Martinus Evans, Sherry Pagoto, Smart Coach: A Problem-Solving Mobile App to Support Weight Loss Management, in Proc *American Medical Informatics Association (AMIA) 2015* (poster)
- Po5 **Marvam Hasan**, Elke Rundensteiner, Emmanuel Agu, Using Hashtags as Labels for Supervised Learning of Emotions in Twitter Messages (poster), in *New England Database Day (NEDBDay)* January 2015, MIT
- Po6 **Lei Wang**, Peder C. Pedersen, Diane Strong, Bengisu Tulu, Emmanuel Agu, **Qian He**, Assessing Diabetic Foot Ulcer Healing at Wound Clinics: Development of a tracking system using SVM based classification, in *Diabetes Technical Meeting (DTM) 2014* (poster), Bethesda, MD
- Po7 Diane Strong, Emmanuel Agu, Peder C. Pedersen, Bengisu Tulu, **Qian He**, **Lei Wang**, Ronald Ignatz, Raymond Dunn, David Harlan, and Sherry Pagoto, *Sugar: A Mobile Phone App for Diabetes and Diabetic Wound Management*, in Proceedings American Medical Informatics Association (AMIA) 2013 (poster)
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- Po10 **Qian He**, Emmanuel O. Agu, Diane M. Strong, Bengisu Tulu, Peder C. Pedersen Characterizing the Performance and Behaviors of Runners Using Twitter, *University of Massachusetts Center for Clinical and Translational Science, 5th Annual Research Retreat*, May 2014
- Po11 **Qian He** and Emmanuel O. Agu, A Context-Aware Activity Recommendation Smartphone Application to Mitigate Sedentary Lifestyles, *University of Massachusetts Center for Clinical and Translational Science, 5th Annual Research Retreat*, May 2014
- Po12 **Lei Wang**, Peder C. Pedersen, Emmanuel Agu, Diane Strong, Tulu Bengisu, Wound Image Analysis System for Diabetics, in Proc. *Int'l Society for Optics and Photonics (SPIE) Medical Imaging Conference*, (poster) Lake Buena Vista, FL, Feb. 9 - 14, 2013
- Po13 Bengisu Tulu, Emmanuel Agu, **Michael Ng**, **Evan Duderewicz**, **Brendan Harris**, **Thomas Jenkins**, **Kenneth Miyaguchi**, Tiffany Moore-Simas, Milagros Rosal, (2011) "Mom-O-Meter: A self-help

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Updated December 29, 2023

pregnancy Android app". Poster, *American Medical Informatics Association (AMIA) 2011 Annual Symposium*, October 2011, Washington, D.C., USA.

- Po14 **Karen Works**, Elke Rundensteiner, Emmanuel Agu, Indexing Adaptive Multi-Route Data Stream Systems, Poster, *New England Database Day (NEDBDay)* January 2009, MIT.
- Po15 **Karen Works**, Elke Rundensteiner, Emmanuel Agu, "Index System for Adaptive Multi-Route Data Stream Systems", Poster, *CRA-W Grad Cohort for Women Program*, April 2009,
- Po16 **Fan Wu**, Emmanuel Agu and **Clifford Lindsay**, Adaptive CPU Scheduling to Conserve Energy in Real-Time Mobile Graphics Applications, (Short paper and Research Poster), *Pacific Graphics* 2008, Tokyo, Japan. October 2008.
- Po17 **Fan Wu** and **Emmanuel Agu**, Unequal Error Protection for Wavelet-Based Wireless Mesh Transmission, in 33rd *ACM Int'l Conference on Computer Graphics and Interactive Techniques (SIGGRAPH 2006)* (Research poster), Boston, MA July 30 – August 3, 2006.
- Po18 **Clifford Lindsay** and Emmanuel Agu, Real-Time Wavelength-Dependent Rendering Pipeline, in 33rd *ACM Int'l Conference on Computer Graphics and Interactive Techniques (SIGGRAPH 2006)* (Research poster), Boston, MA July 30 – August 3, 2006.

Patents

- P1 Ziyang Liu, Reza Sadaarti, Emmanuel Agu, Bengisu Tulu, Diane Strong, Peder Pedersen, Raymond Dunn, Clifford Lindsay Wound Assessment and Classification, Utility Provisional Patent Application, number 63/601,114
- P2 Akshay Iyer, Raghav Nagpal, Apiwat Ditthapron, Emmanuel Agu, Bengisu Tulu, Diane Strong, Peder Pedersen, Raymond Dunn, Clifford Lindsay Wound Image Gathering and Clarification, Utility Provisional Patent Application, number 63/601,117
- P3 Abdulsalam Almadani, Abhishek Shivdeo, Emmanuel Agu Atifa Sarwar, Jacques Kpodonu, Monica Ahluwalia Cardiac Function Assessment and Classification, Utility Provisional Patent Application, number 63/601,605
- P4 Peder Pedersen, Diane Strong, Emmanuel Agu, Bengisu Tulu, Lei Wang, Qian He and Raymond Dunn, System, and method for assessing wound, US Patent number US 20150119721 A1, 2014
- P5 Christina Aiello and Emmanuel Agu, Mobile blood alcohol content and impairment sensing device, US Patent number US20180284100A1, 2017

Awards/Honors Related to Scholarship

- AT1 Harold L. Jurist '61 and Heather E. Jurist Dean's Professor, Nov 2021 – Date
- AT2 Best paper award, Abdulaziz Alajaji, Kavin Chandrasekaran, Luke Buquicchio, Walter Gerych, Emmanuel Agu and Elke Rundensteiner, Adversarial Human Context Recognition: Evasion Attacks and Defenses, IEEE COMPSAC 2023.
- AT3 Best student paper award, Atifa Sarwar and Emmanuel Agu, Passive COVID-19 Assessment using Machine Learning on Physiological and Activity Data from Low End Wearables, in Proc IEEE International Conference on Digital Health (ICDH) 2021

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Updated December 29, 2023

- AT4 Honorable mention best paper, EuroVis 2020 short papers, Hamid Mansoor, Walter Gerych, Luke Buquicchio, Kavin Chandrakasekaran, Elke Rundensteiner, Emmanuel Agu, ARGUS: An Interactive Visual Analytics Framework for the Discovery of Disruptions in Bio-Behavioral Rhythms
- AT5 Member, National Academy of Inventors (NAI), inducted May 2017
- AT6 Honorable mention, top 6 best papers for paper by Maryam Hasan, Elke Rundensteiner, Xiangnan Kong and Emmanuel Agu, Using Social Sensing to Discover Trends in Public Emotion, in Proc IEEE Int'l Conference on Semantic Computing (ICSC) 2017
- AT7 Best paper award for paper by Fan Wu and Emmanuel Agu, UbiWave: Ubiquitous Multiresolution Graphics using Wavelets, in Proc. Int'l Conference on Artificial Reality and Telexistence (ICAT) 2006.
- AT8 Best paper award for paper by Nathan Sheldon, Eric Girard, Seth Borg, Mark Claypool, and Emmanuel Agu. The Effect of Latency on User Performance in Warcraft III, in Proc. *ACM NetGames* 2003, May 2003.
- AT9 Eugene M. Isenberg Scholarship, 1998-1999 (for \$10,000), 1999-2000 (for \$10,000)
- AT10 James F. Naurison Scholarship, 1998-1999 (for \$500)

Research Software (27)

- RS1 *PLEADES* Population Level Observation of Smartphone Sensed Symptoms for In-the-wild Data using Clustering.
- RS2 *INTOSIS* Visual Analytics framework for visualizing and contextualizing smartphone-sensed health symptomatic days.
- RS3 *ARGUS* Visual Analytics framework for visualizing and contextualizing smartphone-sensed circadian rhythms (sleep-wake cycles) & disruptions.
- RS4 *COMEX* Visual Analytics framework for discovering wrong user-assigned labels. In smartphone sensing studies in-the-wild based on computed anomaly scores
- RS5 *DELFI* Visual Analytics framework for discovering wrong user-assigned labels. In smartphone sensing studies in-the-wild based on feature similarity
- RS6 *SmartWAnDS* Wound care smartphone app that uses machine learning to automatically analyze wound images to assess healing progress.
- RS7 *Weedgait* Smartphone sensing app, infers impairment in marijuana users.
- RS8 *Alcogait* Smartphone sensing app, infers Users' intoxication level from their gait.
- RS9 *Alcowatch* Smartwatch sensing app, infers users' intoxication level from their gait.
- RS10 *AlcoContextualizer* Smartphone app, displays visualizations of recurrent drinking contexts to support reflection
- RS11 *Cypress* Exergame smartphone-based system that recommends new games based on sensed user enjoyment level
- RS12 *BMS* Security system that authenticates smartphone users based on their unique behaviors (locations visited, phone interaction style, apps used)
- RS13 *Socioloscope* Smartphone sensing app, infers users' loneliness level from their communication and phone usage patterns
- RS14 *RELAX* Mobile app targeting obesity caused by overeating due to stress

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Updated December 29, 2023

RS15	<i>Sugar</i>	Diabetes and wound care smartphone app that uses machine learning to automatically analyze wound images to assess healing progress.
RS16	<i>SmartCoach</i>	Obesity smartphone counseling application
RS17	<i>On11</i>	Activity and sedentary lifestyle tracking smartphone application. At its peak, the Smartwatch On11 version had over 30,000 subscribers worldwide.
RS18	<i>RecFit</i>	Physical activity recommendation smartphone application
RS19	<i>EMOTEX</i>	Twitter mining application, uses machine learning to detect emotions expressed in short messages.
RS20	<i>Mom-O-Meter</i>	Mobile health application for mitigating gestational diabetes.
RS21	<i>PCam</i>	Programmable digital camera for Computational Photography
RS22	<i>UbiWave</i>	Distributed multiresolution graphics framework using wavelets.
RS23	<i>MADGRAF</i>	Middleware framework for graphics on mobile devices
RS24	<i>RMesa</i>	Remote execution module for mobile 3D graphics applications
RS25	<i>PowerSpy</i>	Software-only tool that profiles application procedure, thread, and I/O energy
RS26	<i>LOCUS</i>	Tagless Location Sensing module for infrastructure 802.11 Wireless LANs
RS27	<i>Review</i>	Bi-directional Reflectance (BRDF) viewer.

Major Grants Awarded as PI, co-PI, or senior personnel (Over \$72 million Funding)

- G1 1UG3NS135168 IMPACT: Integrative Mindfulness-Based Predictive Approach for Chronic low back pain Treatment, UG3, NIH HEAL Initiative, King, Agu and Morone MPIs, Nephew, Ruiz, Wu, Rodriguez (co-I's), requested amount: \$8,842,270. Award dates: Sept 19, 2023, to October 2028.
- G2 1P50MH129701-01A1 Center for Accelerating Practices to End Suicide through Technology Translation (CAPES) P50, NIH/NIMH, Boudreaux and Kiefe MPIs, MPI Methods Core, (Over 20 researchers from WPI and UMMS), Award amount: \$16,000,000 Requested dates: April 2023 to March 2028.
- G3 1R01EB031910-01A1 Smartphone-based wound infection screener by combining thermal images and photographs using deep learning methods, PI Agu, co-PIs: Lindsay, Tulu and Strong. Award amount: \$ 2,458,174. Award dates: Sept 1, 2022, to May 31, 2026.
- G4 2 T32 CA172009 Prevention and Control of Cancer: Training for Change in Individuals and Systems (PRACCTIS 2.0), NIH National Cancer Institute (NCI), T32 grant, MPIs Lemon/Houston UMMS, WPI mentors: Emmanuel Agu, Dmitry Korin, Elke Rundensteiner, Sharon Johnson, Diane Strong, Funding Amounts: \$1,558,829, Award Dates: 08/08/2019 – 07/31/2024
- G5 Design and Synthesis of Materials for Agile Manufacturing, Danielle Cote (PI), Army Research Labs (ARL), Funding Amount: \$24,999,821.00, Award Dates: 08/15/19 – 08/14/22
- G6 HR001117S0032-WASH-FP-031, DH-Warfighter: Improving Warfighter Health by Early Detection of Digital Biomarkers, Emmanuel Agu (PI), Elke Rundensteiner (co-PI), Defense Advanced Research Agencies (DARPA). Funded Amount \$2,803,313. Award dates 3/1/2018 – 2/28/2022
- G7 1R01EB025801-01 SCH: INT: Smartphone Wound Image Parameter Analysis and Decision Support in Mobile Environments, Emmanuel Agu (PI), Diane Strong (co-PI), Bengisu Tulu (co-PI), National

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Updated December 29, 2023

- Science Foundation, Smart and Connected Health Program. Requested amount \$1,968,571. Award dates 1/1/2018 – 11/30/2023 (2 NCEs) (funded by NIH NIBIB)
- G8 Data-driven healthcare proposal (D3Health) proposal to the Mass. Life Sciences Fund, Luzuriaga, McManus (PIs), collaboration between UMass Medical School, WPI and HDI, \$6 million.
- G9 1R21AA025193-01 Machine Learning Approach for Inferring Alcohol Intoxication Levels from Gait Data, Michael Stein (PI), Emmanuel Agu (PI), Ana Abrantes (co-I), NIH R21 National Institute on Alcoholism. PA-14-188. Requested amount \$408,578, WPI sub-contract amount (\$115,469). Award Dates 7/1/17-6/30/19
- G10 NSF Award # 1723555 Collaborative Research: Broadening Secure Mobile Software Development (SMSD) Through Curriculum and Faculty Development, Fan Wu (PI), Cassandra Thomas (co-PI), Kai Qian (co-PI), Hossain Shahriar (co-PI), Emmanuel Agu (co-PI). Requested amount (\$498,970), WPI Share \$149,487. Award Dates 09/01/17-08/30/20
- G11 NIH 1R21DA041153-01A1 A Smartphone App to Facilitate Buprenorphine Discontinuation, PI: Abrantes, co-PIs: Michael Stein, Emmanuel Agu. NIH NIDA submission, Award amount: \$103,609. Award dates: 6/15/16 – 5/31/18
- G12 SocialoScope: A Passive System to Infer Loneliness from the Interaction and Communication Patterns of Smartphone Users, Emmanuel Agu (PI), WPI Health Delivery Institute (HDI) Internal Proposal. Award amount \$21,000, Award dates June 1-August 31, 2016.
- G13 KERN Entrepreneurial Engineering Network grant, Developing the Entrepreneurial Engineer, Glenn Gaudette (PI), Emmanuel Agu Entrepreneurial Engineering Faculty (EEF) Award Amount: \$1,760,000. Award dates June 2016 – April 2019
- G14 NIH R21AA024295 A Tailored Physical Activity Smartphone App for Patients with Alcohol Dependence, Abrantes (PI), co-PIs: Michael Stein, Emmanuel Agu, Award amount: \$207,207. Award Dates: 4/1/16-3/31/21
- G15 NSF REU SITE Award IIS-1560229: Data science research for healthy, safe, and sustainable communities, Elke Rundensteiner and Fatemeh Emdad (PIs), Program faculty: Emmanuel Agu, Mohamed Eltabakh, Carolina Ruiz, Xiangnan Kong, Yanhua Li, Lane Harrison, Dmitry Korkin, Jian Zou, Randy Paffenroth. Award Amount: \$358,574. Award Dates: May 1, 2016 - April 30, 2019
- G16 KERN Entrepreneurial Engineering Network grant, Developing the Entrepreneurial Engineer, Glenn Gaudette (PI), Emmanuel Agu Entrepreneurial Engineering Faculty (EEF) Award Amount: \$488,500. Award dates June 2015 – April 2016
- G17 NIH R01HL122302, Project Title: RELAX: A Mobile Application Suite Targeting Obesity and Stress, Principal Investigator: Pagoto, Sherry L, WPI co-PIs: Bengisu Tulu (School of Business), Emmanuel Agu (Computer Science), Tsung-Ye Wang (School of Business). Award amount: \$1,952,780. WPI sub-contract: \$618,546. Award dates: 12/1/2014 - 11/30/2017
- G18 Grant Number: 1 R21 DK098556-01, Project Title: Feasibility Trial of a Problem-Solving Weight Loss Mobile, Principal Investigator: Pagoto, Sherry L, WPI co-PIs: Bengisu Tulu (School of Management), Emmanuel Agu (Computer Science). Award amount: \$470,393. WPI sub-contract: \$90,020. Award dates: 4/1/2013 - 3/31/2015
- G19 NSF Award Number 1065298, SHB: Medium: Self-Care Management: Patient-Centered Diabetic Wound Care Using Smart Phones, National Science Foundation, CISE Smart Health and

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Updated December 29, 2023

Wellbeing program, D. Strong, PI, E. Agu, R. Ignatz, P. Pedersen, B. Tulu, Co-PIs, Award amount: \$1,200,000. Award dates: September 1, 2011 - August 31, 2015.

- G20 Matthew Ward (PI) and Emmanuel Agu, George Heineman, Neil Heffernan (co-PIs), Fellowships in Computer Science to Support the Learning Sciences and Security, GAANN proposal, Award amount: \$804,940, (\$177,610 cost-sharing). Award dates: 8/06 to 7/09.
- G21 Kaveh Pahlavan (PI) and Emmanuel Agu (co-PI), An Integrated Multi-Layer Wireless LAN Testbed, MRI equipment grant from the National Science Foundation (NSF), #0303592 Award amount: \$380,000. Award dates: September 2003 – August 2005.

Minor Grants (< \$50,000 award amount) as PI, co-PI, or senior personnel (>\$180,000 total)

- G22 Cardiomyopathy Risk Stratification in Black Populations using Deep Learning, Nvidia Hardware grant, for 2 Nvidia RTX A5000 24GB Graphics Cards valued at \$5000, Emmanuel Agu (PI), Jacques Kpodonu (co-PI), Mar 10, 2022
- G23 Stability Health Sandbox Grant, Massachusetts Technology Collaborative (MeHI), PI David Harlan, co-PIs Mike Aspinwall, Emmanuel Agu, Diane Strong, Bengisu Tulu, Soussan Djamasbi, Rodica Neamtu, \$50,000, 2020 Academic year
- G24 Stroke Rehabilitation through Gaming: Proactively Predicting Non-Adherence to Facilitate Just-In-Time Interventions Mark Claypool, Lynn Gauthier, Emmanuel Agu, UML-WPI Collaborative Seed Funding, \$11,486, Summer 2019
- G25 SHB: Medium: Self-Care Management: Patient-Centered Diabetic Wound Care Using Smart Phones, National Science Foundation, CISE Smart Health and Wellbeing program, REU Supplement, (NSF IIS-1065298) D. Strong PI and E. Agu, Award amount: \$13,000. Grant dates: 2013-2014
- G26 Emmanuel Agu (PI), \$500 of equipment from Nvidia Corp Inc. (1 Programmable Graphics Card for Desktop Computers), April 2011
- G27 Emmanuel Agu (PI), \$1,250 of equipment from Nokia Inc. (5 C5 Smartphones), March 2011
- G28 Emmanuel Agu (PI), \$8500 of equipment from Google Inc. (20 Motorola Droid 2 Smartphones), May 2010
- G29 Emmanuel Agu, Speedup of Synthetic Aperture Radar Algorithm using GPUs, \$8,000, Raytheon Inc., December 2009
- G30 David Olinger and Emmanuel Agu (co-PIs), Airdrop research projects, Airdrop Technology Team at Natick Soldier Research, Development, and Engineering Center, under Solicitation Number "07-09 Natick BAA", Award amount: \$40,000. Grant dates: January 2008 – 2009.
- G31 Emmanuel Agu (PI) and Robert Lindeman (co-PI), \$5000 of equipment from ATI Inc. (10 Programmable Graphics Cards for Desktop Computers)
- G32 Emmanuel Agu (PI), "Location-Aware Computing," \$6450 research grant from the WPI Research and Development Council (RDC), summer 2005, 2005-2006 academic year
- G33 Emmanuel Agu (PI), "Mobile Adaptive Distributed Graphics Framework (MADGRAF), \$4500 research grant from WPI Research and Development Council (RDC), Summer 2003

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Updated December 29, 2023

G34 Emmanuel Agu (PI), WPI Computer Science Dept. Research Startup Grant, Award amount: \$25,000. Grant dates: June 2002 – Date

Talks

Invited Talks (External to WPI)

- T1 Invited Talk, WPI-UMMS NSF Outreach Workshop, Mobile Sensing for Healthcare, WPI Campus Center, May 20, 2016. Host: Dr Indic Premananda, UMass Medical School.
- T2 Invited talk, University of Massachusetts Lowell, Dept. of Computer Science, Novel Mobile and Social Media Interventions for Preventive Health and Disease Treatment, February 26, 2015. Host: Benyuan Liu
- T3 Invited talk, Mathematics in Computer Graphics and Games, at Mathematics Institute for Secondary Teaching, hosted by Suzanne Weekes and Luca Capogna, 2014, 2015, 2017.
- T4 Invited talk, Tuskegee University Dept. of Computer Science, Mobile and Ubiquitous Health Research at HDI, November 14, 2013. Host: Fan Wu
- T5 Invited talk, Speeding up the Synthetic Aperture Radar (SAR) Code using Graphics Processing Units (GPU), Raytheon Network-centric systems, Marlborough, Massachusetts, Feb 19, 2009.
- T6 Invited talk, Graduate Degrees for Minorities in Engineering and Science Program, Boston University, October 2006
- T7 Invited Talk, WPI MASTER program for minorities to strengthen minority high school student's skills and abilities in math, engineering and science, November 2, 2005
- T8 Invited Talk, WPI MASTER program for minorities to strengthen minority high school student's skills and abilities in math, engineering and science, February 16, 2005

Paper presentations and other Talks

(Legend: WPI undergraduate students are underlined, graduate students are underlined + bold)

- T9 Paper presenter for Joshua Audibert, Elijah Gonzalez, Ryan Orlando, Nicholas Wong, Emmanuel Agu and Mark Claypool, Machine Learning Prediction of Just Dance Enjoyment from Mobile Sensor Data, 2023 IEEE Conference on Games (CoG).
- T10 Paper presenter for Colin Willoughby, Ian Banatoski, Paul Roberts and Emmanuel Agu, Drunk Selfie: Intoxication Detection from Smartphone Selfie Images, submitted to the 1st IEEE International Workshop on Integrated Smart Healthcare (WISH 2019) (co-located with IEEE COMSAC)
- T11 Paper presenter for Andrew McAfee, Jacob Watson, Ben Bianchi, **Christina Aiello**, Emmanuel Agu, AlcoWear: Detecting Blood Alcohol Levels from Wearables, *IEEE Conference on Ubiquitous Intelligence and Computing (UIC) 2017*, San Francisco, CA
- T12 Paper presenter for **Qian He** and Emmanuel Agu, Smartphone Usage Contexts and Sensable Patterns as Predictors of Future Sedentary Behaviors, in Proceedings of the IEEE-NIH Special Topics Conference on Healthcare Innovations and Point-of-Care Technologies (HI-POCT '16), Cancun, Mexico, Nov 9-11, 2016

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Updated December 29, 2023

- T13 Paper presenter for **Gauri Pulekar** and Emmanuel Agu, Autonomously Sensing Loneliness and Its Interactions with Personality Traits using Smartphones, in Proceedings of the IEEE-NIH Special Topics Conference on Healthcare Innovations and Point-of-Care Technologies (HI-POCT '16), Cancun, Mexico, Nov 9-11, 2016.
- T14 Paper presenter for **Christina Aiello** and Emmanuel Agu, Investigating Postural Sway Features, Normalization and Personalization in Detecting Blood Alcohol Levels of Smartphone Users, in Proc Wireless Health Conference 2016
- T15 Paper presenter for Emmanuel Agu and Mark Claypool, Cypress: A Cyber-Physical Recommender System to Discover Smartphone Exergame Enjoyment, in Proc Int'l Workshop on Engendering Health with RecSys, co-located with ACM RecSys 2016, Boston MA.
- T16 Paper presenter for **Zach Arnold**, **Danielle LaRose**, Emmanuel Agu, A Factorial Experiment to Investigate Naturalistic Factors Affecting Smartphone Gait Analysis, in Proc 17th Int'l Conference on e-Health Networking, Applications and Services (Healthcom) 2015
- T17 Paper presenter for **Zach Arnold**, **Danielle LaRose**, Emmanuel Agu, Smartphone Inference of Alcohol Consumption Levels from Gait, in Proc IEEE Conf. on Healthcare Informatics 2015.
- T18 Paper presenter for **Clifford Lindsay** and Emmanuel Agu, Previsualization using a Computational Photography Camera, in Proc. Int'l Symposium on Visual Computing (ISVC) 2014, Las Vegas, Nevada
- T19 Paper presenter for paper **Clifford Lindsay** and Emmanuel Agu, Automatic Multi-Light White Balance using Illumination Gradients and Color Space Projection, in Proc. Int'l Symposium on Visual Computing (ISVC) 2014, Las Vegas, Nevada
- T20 Paper presenter for **Wei Wang**, **Zhilu Chen**, **Baoyuan Xing**, **Xiaochen Huang**, **Shengwen Han** and Emmanuel Agu, A Smartphone-based Digital Hearing Aid to Mitigate Hearing Loss at Specific Frequencies in Proc Workshop on Mobile Medical Applications (MMA) 2014, co-located with ACM Sensys 2014, Memphis Tennessee
- T21 Paper presenter for **Qian He**, Emmanuel Agu, Diane Strong and Bengisu Tulu, RecFit: A Context-Aware System for Recommending Physical Activities, in Proc Workshop on Mobile Medical Applications (MMA) 2014, co-located with ACM Sensys 2014, Memphis Tennessee
- T22 Paper presenter for paper Emmanuel Agu, Peder C. Pedersen, Diane Strong, Tulu Bengisu, **Qian He**, **Lei Wang**, **Yejin Li**, The smartphone as a Medical Device: Assessing Enablers, Benefits and Challenges, in Proc Workshop on Design Challenges in Mobile Medical Device Systems (DC-MMDS) (in conjunction with IEEE SECON 2013)
- T23 Paper presenter for paper **Andrew Zafft** and Emmanuel Agu, Malicious WiFi Networks: A First Look, in Proceedings, Workshop on Security in Communications Networks (SICK), co-located with IEEE Conf. on Local Computer Networks (LCN), Clearwater, Florida, Oct 2012
- T24 Paper presentation, **Kutty Banerjee**, and Emmanuel Agu "Estimating Mobile Memory Requirements and Rendering Time for Remote Execution of the Graphics Pipeline ", in Eurographics, Dublin, Ireland, August 2005
- T25 Paper presentation for paper, **Kutty Banerjee**, and Emmanuel Agu, PowerSpy: Fine-Grained Software Energy Profiling for Mobile Devices", in IEEE WirelessCom Conference, June 2005
- T26 Paper presentation for paper **Kutty Banerjee** and Emmanuel Agu, Remote Execution for 3D Graphics on Mobile Devices ", in IEEE WirelessCom Conference, June 2005

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Updated December 29, 2023

- T27 Paper presentation, Emmanuel Agu, **Kutty Banerjee**, **Shirish Nilekar**, **Oleg Rekutin**, **Diane Kramer**
" A Middleware Architecture for Mobile 3D Graphics", in MDC Workshop 2005 (co-located with ICDCS), Columbus, Ohio, June 2005
- T28 Paper presenter for paper, Ali Taheri, Arvinder Singh and Emmanuel Agu, Location Fingerprinting on Infrastructure 802.11 Wireless Local Area Networks (WLANs) using Locus, talk at Fourth Int'l IEEE Workshop on Wireless Local Networks, (in conjunction with IEEE LCN 2004), Tampa, Florida, November 2004
- T29 Paper presentation for paper, Emmanuel Agu and Francis S. Hill, A Simple Method for Ray Tracing Diffraction, Computer Graphics and Geometric Modeling (CGGM) Workshop, Montreal, Canada, May 2003
- T30 Paper presentation for paper, Emmanuel Agu and Francis S. Hill, Diffraction Shading Models for Iridescent Surfaces, paper presentation in IASTED VIIP Conference, 2002
- T31 Paper presentation for paper, Emmanuel Agu and Aura Ganz, A Resource Reservation Protocol for Wireless Local Area Networks, paper presentation in Massachusetts Telecommunications Conference (MTC) 1996

Invited Talks Internal to WPI

- T32 Panelist for Critical Conversations: AI and your health, part of Arts and Science week 2023, September 19, 2023.
- T33 WPI Computer Science Colloquium, An Excursion in Mobile Health Sensing, April 29, 2016. Host: Krishna Venkatasubramanian.
- T34 Speaker, WPI CS Applied Logic and Security (ALAS) Research Group, Security Issues in the Sugar Diabetes App, April 2013
- T35 Speaker, Computer Science Colloquium, Mobile and Ubiquitous Health Research at HDI, April 5, 2013. Host Craig Wills
- T36 Speaker, Progress Report on MADGRAF, WPI CS Image Science Research Group (ISRG) WPI, Nov. 2004
- T37 Speaker, Wireless LAN location sensing, WPI CS Performance Evaluation of Distributed Systems (PEDS) Research Group, March 15, 2004
- T38 Speaker, Photorealism in computer graphics, WPI CS Image Science Research Group (ISRG), November 2003
- T39 Speaker, Wireless network, and sensor protocol issues, WPI CS Performance Evaluation of Distributed Systems (PEDS) research group, Oct. 2003
- T40 Speaker, Mobile 3D graphics, WPI CS WPI CS Performance Evaluation of Distributed Systems (PEDS) research group, WPI, April 2003
- T41 Speaker, Mobile 3D graphics, WPI CS Image Science Research Group (ISRG), March 2003
- T42 Guest Lecture, Internet Business Design & Development Class, SOM 597G, School of Management, University of Massachusetts-Amherst, Spring 1999.
- T43 Teaching Assistant and Guest Lecture, Wireless Local Area Networks Class, ECE 597A, Electrical and Computer Engineering Dept., Univ. of Massachusetts-Amherst, Fall 1996.

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Updated December 29, 2023

Media Coverage of my Work

- MC1 WPI researcher, UMass Chan Medical School team up to develop wound app that could help save lives, March 18, 2023. <https://www.telegram.com/story/news/technology/2023/03/18/a-hospital-and-wpi-in-worcester-are-developing-wound-app-to-save-lives/70009884007/>
- MC2 WPI researchers are developing smartphone apps to detect wound infections, Spectrum News 1, March 2, 2023. <https://spectrumnews1.com/ma/worcester/news/2023/03/02/wpi-researchers-developing-app-to-detect-wound-infections-#>
- MC3 WPI researcher receives \$2.4M grant for infection detection app, Worcester Business Journal, March 1, 2023. <https://www.wbjournal.com/article/wpi-researcher-receives-24m-grant-for-infection-detection-app>
- MC4 WPI Researcher's team receives +2.4 million to develop smartphone app to detect wound infections, WPI Press release, February 28, 2023. <https://www.wpi.edu/news/wpi-researchers-team-receives-24-million-develop-smartphone-app-detect-wound-infections>
- MC5 Strong Scientific Theory + AI-centered Collaborations = Real Progress for People's Lives: Soboyejo and Agu highlight WPI's interdisciplinary, problem-solving approach at Nobel Symposium, <https://www.wpi.edu/news/strong-scientific-theory-ai-centered-collaborations-real-progress-people-s-lives>
- MC6 Your Smartphone Can Tell If You're Drunk-Walking, Wired, September 7, 2020, <https://www.wired.com/story/your-smartphone-can-tell-if-youre-drunk-walking/>
- MC7 Worcester Polytechnic Institute and UMass Lowell team up to seed growth of combined research, <https://www.wpi.edu/news/worcester-polytechnic-institute-and-umass-lowell-team-seed-growth-combined-research>, August 28, 2019
- MC8 Physician in your Pocket: Emmanuel Agu, WPI Journal, September 28, 2018

DARPA Warfighter Analytics for Smartphone Healthcare (WASH) project:

- MC9 TV interview with Channel 3, Worcester about WASH grant, September 25, 2018
- MC10 Radio interview on WBZ Radio Boston about WASH grant, September 25, 2018
- MC11 Personalized Healthcare on the Go, Clinical OMICS, September/October issue, Sept. 25, 2018.
- MC12 WPI Granted \$3M to develop Soldier Brain Injury Smartphone app, Worcester Business Journal, Sept 25, 2018. <http://www.wbjournal.com/article/20180925/NEWS01/180929975/wpi-granted-3m-to-develop-soldier-brain-injury-smartphone-app>.
- MC13 Worcester Polytechnic Institute Secures \$2.8 Million to Develop a Smartphone App to Help Assess the Health of Soldiers, Business Insider, Sept 24, 2018. <https://markets.businessinsider.com/news/stocks/worcester-polytechnic-institute-secures-2-8-million-to-develop-a-smartphone-app-to-help-assess-the-health-of-soldiers-1027559959>.
- MC14 WPI Secures \$2.8 Million to Develop a Smartphone App to Help Assess the Health of Soldiers, WPI News, Sept 24, 2018. <https://www.wpi.edu/news/wpi-secures-28-million-develop-smartphone-app-help-assess-health-soldiers>
- MC15 Wall & Main: WPI professor's research wins \$2.8M grant for app that tracks warriors' health, Worcester Telegram and Gazette, May 7, 2018. <http://www.telegram.com/news/20180507/wall-amp-main-wpi-professors-research-wins-28m-grant-for-app-that-tracks-warriors-health>

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Updated December 29, 2023

- MC16 **Alcogait Smartphone Intoxication Sensing from Gait project:** Over 120 media articles including Boston Globe, 2 NPR radio articles, BBC Radio, Worcester Telegram and Gazette, Boston TV channels 2,3,4 and 5 and 7.
- MC17 Smartphone Intelligence, Diversity in Action, September/October 2018
- MC18 WPI reaches new research funding milestone, <https://www.wpi.edu/news/wpi-reaches-new-research-funding-milestone>, Sept. 18, 2018.
- MC19 WPI celebrates record year for student patent filings, Licences, Worcester Telegram & Gazette, May 7, 2018. <http://www.telegram.com/news/20180507/wpi-celebrates-record-year-for-student-patent-filings-licenses>
- MC20 Too High, Drunk or Sleepy to Drive? One day your phone could know, Wired Magazine, May 1, 2018, <https://www.wired.com/story/portable-field-sobriety-tests/>
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- MC28 Data Science REU, <https://www.wpi.edu/news/data-science-reu>, July 26, 2017
- MC29 PhD scholars from Africa advance research at WPI, <https://www.wpi.edu/news/phd-scholars-africa-advance-research-wpi>, Nov 16, 2017.
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Updated December 29, 2023

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- MC39 UMass Medical School and WPI Share \$2 million NIH Grant to Develop Stress Eating App, WPI News, February 2, 2015. <https://www.wpi.edu/news/tuluapp>. Accessed December 15, 2016.
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- MC46 WPI team gets \$1.2 million from NSF for Diabetes Care app, Boston Business Journal, December 12, 2011. <http://www.bizjournals.com/boston/blog/mass-high-tech/2011/12/wpi-team-gets-12m-from-nsf-for-diabetes-care.html>. Accessed December 15, 2016

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Updated December 29, 2023

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- MC48 WPI to develop smart phone app for foot ulcers, advanced diabetes, News-Medical-net website, December 13, 2011. <http://www.news-medical.net/news/20111213/WPI-to-develop-smart-phone-app-for-foot-ulcers-advanced-diabetes.aspx>. Accessed Dec 15, 2011
- MC49 Four WPI Computer Science Faculty Members Receive Federal Education Award, June 6, 2006. <http://www.prnewswire.com/news-releases/four-wpi-computer-science-faculty-members-receive-federal-education-award-55950502.html>
- MC50 Shoploco Internet Startup:** Articles in Boston Globe and Daily Hampshire Gazette, Northampton, MA (1999)

Professional Society Memberships

- PM1 Member of ACM SIGGRAPH Computer Graphics Society, Boston,
- PM2 Member, Institute of Electrical and Electronics Engineering (IEEE)
- PM3 Member, Association of Computing Machinery (ACM)

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Updated December 29, 2023

TEACHING

Summary Table of Classes Taught each Year at WPI

Academic Year	WPI Computer Science classes taught (3 class teaching load) (class, semester/term, undergraduate classes in italics)			Other classes taught (for CPE)
2023-24	CS 528 (Fall)	Course release	Course release	Introduction to AI
2022-23	CS 528 (Spring)	Course release	Course release	
2019-20	CS 528 (Fall)	CS 543 (Fall)	Course release	
2018-19	CS 528 (Fall)	CS 543 (Fall)	Course release	
2017-18	CS 528 (Fall)	CS 543 (Spring)	CS 4518 (C)	
2016-17	<i>4731 (B)</i>	<i>4518 (C)</i>	543 (Spring)	
2015-16	Sabbatical (Fall)	<i>403X (D)</i>	528 (Spring)	
2014-15	<i>4731 (A)</i>	<i>403X (D)</i>	528 (Spring)	
2013-14	543 (Fall)	545(Spring)	<i>4731 (D)</i>	
2012-13	543 (Fall)	<i>4731 (C)</i>	525M (Spring)	
2011-12	543 (Fall)	<i>4731 (B)</i>	563 (Spring)	525G (Fall)
2010-11	543 (Fall)	<i>4731 (C)</i>	525M (Spring)	513/ECE 506
2009-10	<i>4731 (D)</i>	513/ECE 506 (Spring)	563 (Spring)	
2008-09	Sabbatical (Full year)			
2007-08	543 (Fall)	513/ECE 506 (Spring)	<i>4731 (B)</i>	
2006-07	543 (Fall)	<i>4514 (C)</i>	563 (Spring)	
2005-06	543 (Fall)	<i>4514 (C)</i>	525M (Spring)	
2004-05	<i>4731 (A)</i>	<i>4514 (C)</i>	563 (Spring)	
2003-04	543 (Fall)	<i>4731 (A)</i>	525M (Spring)	
2002-03	<i>4731 (A)</i>	<i>4514 (C)</i>	563 (Spring)	

Student Evaluations of Classes Taught at WPI (Question 2)

Classes with * indicate a pilot use of the experimental IDEAS course evaluation system.

Graduate Courses

- CS 528, Mobile and Ubiquitous Computing, WPI CS Dept.,
 - Fall 2023 (32 students, Average approval rating not yet available)
 - Spring 2023 (28 students, 3.5/5 average approval rating)
 - Fall 2020 (17 students, 3.7/5 average approval rating)
 - Fall 2019 (29 students, 4.2/5 average approval rating)
 - Fall 2018 (26 students, 4.6/5 average approval rating)
 - Fall 2017 (27 students, 4.39/5 average approval rating)
 - Spring 2016 (41 students, 3.78/5 average approval rating)
 - Spring 2015 (23 students, 4.33/5 average approval rating)
- CS 525M, Mobile and Ubiquitous Computing, Graduate Special Topics, WPI CS Dept.,
 - Spring 2013 (21 students, 4.13/5 average approval rating)
 - Spring 2011 (19 students, 4.25/5 average approval rating)

Emmanuel O. Agu, PhD

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Updated December 29, 2023

- Spring 2006 (15 students, 4.21/5 average approval rating)
- Spring 2004 (16 students, 97% approval rating)
- CS 543, Computer Graphics, WPI Computer Science Dept.
 - Fall 2019 (8 students, 4.0/5 average approval rating)
 - Spring 2018 (22 students, 3.92/5 average approval rating)
 - Spring 2017 (29 students, 4.52/5 average approval rating)
 - Fall 2013 (21 students, 4.19/5 average approval rating)
 - Fall 2012, (21 students, 4.29/5 average approval rating)
 - Fall 2011, (7 students, 4.21/5 average approval rating)
 - Fall 2010, (12 students, 4.25/5 average approval rating)
 - Fall 2007, (12 students, 4.45/5 average, 100% approval rating)
 - Fall 2006, (14 students, 4.27/5 approval rating)
 - Fall 2005, (13 students, 3.8/5 average rating)
 - Fall 2003, (21 students, 94% approval)
- CS 563, Advanced Topics in Computer Graphics, WPI CS Department
 - (Focus on real-time rendering), spring 2012, (4 students, 4.28 avg approval rating)
 - (Focus on photorealistic rendering), Spring 2010, (7 students, 4.17/5)
 - (Focus on photorealistic rendering), Spring 2007, (13 students, 4.25/5)
 - (Focus on real-time rendering), Spring 2005 (12 students, *)
 - (Focus: photorealistic rendering), Spring 2003, (8 students, 100% approval rating)
- CS 513/ECE 506, Computer Networks, WPI Computer Science Dept.
 - Fall Semester 2010 at General Dynamics (9 students, 4.25 average approval rating)
 - Spring Semester, 2010 (38 students, 4.27/5 (CS) 3.91/5 (ECE) avg approval rating)
 - Spring Semester, 2008 (19 students, 4.3/5 approval rating)
- CS 525G, Special Topics Graphics Processing Units (GPGPU)
 - Fall Semester 2011 at BAE Systems (18 students, 4.21 average approval rating)
- CS/ECE 545, Digital Image Processing
 - Spring Semester 2014, (39 Students, 4.13/5 (CS), 4.00/5.0 (ECE) approval rating)

Undergraduate Courses

- CS 4518/403X, Mobile and Ubiquitous Computing, WPI CS Dept.,
 - C term, 2018 (42 students, 4.04/5 average approval rating)
 - C term, 2017 (23 students, 3.96/5 average approval rating)
 - D term, 2016 (45 students, 3.04/5 average approval rating)
 - D term, 2015 (45 students, 3.47/5 average approval rating)
- CS 4731, Computer Graphics, WPI Computer Science Dept.
 - B Term, 2016 (26 students, 3.65 average approval rating)
 - A Term, 2014 (24 students, 3.06/5 average approval rating)
 - D Term, 2014 (57 students, 3.73/5 average approval rating)
 - C Term, 2013 (45 students, 3.55/5 average approval rating)
 - B Term, 2011 (31 students, 4.13/5 average approval rating)

Emmanuel O. Agu, PhD

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Updated December 29, 2023

- C Term, 2011 (51 students, 4.07/5 average approval rating)
- D Term, 2010 (60 students, 3.7/5 average approval rating)
- B Term, 2007 (36 students, 4.31/5 average approval rating)
- A Term, 2004 (70 students, *)
- A Term, 2003 (75 students, *)
- A Term, 2002 (55 students, 87% approval rating)

- CS 4514, Computer Networks, WPI Computer Science Dept.
 - C Term, 2007 (26 students, 4.43/5 approval rating)
 - C Term, 2006 (34 students, 3.75/5 average rating)
 - C Term, 2005 (49 students, *)
 - C Term, 2003 (50 students, 93% approval rating)

- HRTA 200, Hospitality Computer Applications, Univ. of Massachusetts, HRTA Dept.
 - Spring 2002 (4 sections, 72 students, 100% approval rating)

Awards/Honors Related to Teaching

- A1 Nominee, outstanding academic advisor of the year, 2018-19
- A2 Advisor, Fact or Fiction, by Charles Lovering, Anqi Lu, Cuong Nguyen, Huyen Nguyen, Honorable Mention for Provost's Award for best MQP in Comp Science Dept., 2017-18, top 10 out of 49 MQPs
- A3 Advisor, Intoxigait Deep Learning by Nicholas Cheung, Sam Huang, Joseph Bremner and Quoc Ho Lam, Honorable Mention for Provost's Award for best MQP in Comp Science Dept., 2017-18, top 10 out of 49 MQPs
- A4 Advisor, Depression Sensing by Ada Dogrucu, Aleksa Perucic, Damon Ball, Anabella Isaro, Honorable Mention for Provost's Award for best MQP in Comp Science Dept., 2017-18, top 10 out of 49 MQPs (co-advised with Elke Rundensteiner)
- A5 Advisor, Detruncation of Attenuation Maps using Neural Networks by Akshay Thejaswi, Aditya Nivarathi and Daniel Beckwith, Honorable Mention for Provost's Award for best MQP in Comp Science Dept., 2016-17, top 3 out of 46 MQPs, (co-advised with Clifford Lindsay)
- A6 Advisor WPI Graduate Research Innovation Exchange (GRIE), Poster Competition, Arts and Science 2017, Finalist MS Level by Nichole Etienne
- A7 Advisor, WPI Graduate Research Innovation Exchange (GRIE), Poster Competition, Arts and Science 2016, Winner MS Level by Christina Aiello
- A8 Advisor WPI Graduate Research Innovation Exchange (GRIE), Poster Competition, Arts and Science 2016, Finalist MS Level by Gauri Pulekar
- A9 Advisor WPI Graduate Research Innovation Exchange (GRIE), Poster Competition, Arts and Science 2013, Finalist MS Level by William Disanto
- A10 Nominee, Moruzzi Young Faculty Award for Innovation in Undergraduate Education, 2006
- A11 Advisor, Smartphone Gait Inference MQP by Zachary Arnold and Danielle Larose, Provost's MQP award for the best MQP in the WPI CS department for the 2014-2015 academic session

Emmanuel O. Agu, PhD

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Updated December 29, 2023

A12 Advisor, WPI Grad 2006 poster competition, Multiresolution for Mobile Graphics by Fan Wu. Poster won 2nd place PhD level, campus wide.

A13 Advisor, Wireless LAN Location Sensing MQP by Ali Taheri and Arvinder Singh, Provost's MQP award for the best MQP in the WPI CS department for the 2003-2004 academic session

Teaching Innovations at WPI

New classes introduced (4)

- Designed and taught a new 2-day course in Introduction to Artificial Intelligence (AI) at the Army Research Laboratories in Natick, Massachusetts, October 2023
- Proposed and received approval for a new experimental undergraduate course in Mobile and Ubiquitous computing (CS 403X), D Term 2015. The course was converted to CS 4518, a Cat 1 class in Fall 2015.
- Proposed and received approval for a new graduate course in Mobile and Ubiquitous computing (CS 528), Spring 2015. Introduced this advanced class earlier as Mobile and Pervasive computing (CS 525M)
- Proposed, designed, and taught a new graduate course in General Purpose Computing using Graphics Processing Units at BAE Systems (CS 525G), fall 2011.

Classes revamped (3)

- Developed Modules (EMLs) to develop the entrepreneurial mindset in graduate and undergraduate Mobile & Ubiquitous Computing classes (CS 403X & CS 528), funded by KEEN grant.
- Revamped introductory undergraduate and graduate computer graphics (CS 4731 and CS 543) classes to include new tested methods for teaching computer graphics.
- Revamped the advanced graduate computer graphics (CS 563) class to include cutting edge topics such as Graphics Processing Units (GPUs), Spherical Harmonics, Image-based rendering, and Bi-directional Reflectance Functions (BRDFs).

Visiting Scholars

1. Xixuan Zhao, PhD candidate, Forestry Engineering, Beijing Forestry University, Nov. 2018 – Oct. 2019
2. Apratim Mukherjee Undergraduate, Computer Science and Engineering, Manipal Institute of Technology, summer 2019
3. Dr Shu Shen, School of Computer Science Nanjing University of Telecommunications and Post, Nov 2019 – October 2020

Graduate Students

Emmanuel O. Agu, PhD

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Updated December 29, 2023

PhD Dissertations Advised and Co-Advised (Completed)

- P1 Walter Gerych, Leveraging Mislabeled Datasets, and Improving Imperfect Pre-Trained Models, WPI Data Science Program (co-advised with Elke Rundensteiner), October 2023
- P2 Ziyang Liu, Neural Networks Models for Multi-Attribute Assessment of Fine-Grained Wound Images, WPI Computer Science Dept, April 2023
- P3 Abdulaziz Alajaji, Robust Representation Learning for Context Recognition on Weakly Supervised Mobile Sensed Data with Covariate Shifts, WPI Data Science Program (co-advised with Elke Rundensteiner), April 2023.
- P4 David Clement, Breast Cancer Detection using Deep Learning, Computer Science Department, African University of Science and Technology (AUST), (co-advised with Prof Wole Soboyejo), January 2023.
- P5 Hamza Abujrida, Machine Learning Models for Parkinson's Disease Gait Assessment and Medication Adherence from Smartphone Sensor Data, WPI ECE Department, (co-advised with Kaveh Pahlavan, WPI ECE Dept.), December 2022.
- P6 Hamid Mansoor, Visual Analytics for Smartphone Health Phenotyping, WPI Computer Science Dept, (co-advised with Elke Rundensteiner). August 2022.
- P7 Qian He, PhD, WPI Computer Science Dept., Advisor, Computational Models for Predicting Sedentary Behaviors, May 2017
- P8 Clifford Lindsay, PhD, Programmable Image-Based Light Capture for Previsualization. WPI Computer Science Dept., Advisor, Completed April 2011.
- P9 Fan Wu, PhD, Ubiquitous Scalable Graphics: An End-to-End Framework using Wavelets, WPI Computer Science Dept., Advisor. Completed November 2008

PhD Dissertations Advised and Co-Advised (In Progress)

- P10 Yihan Wang, WPI Computer Science Department, September 2023 – Date.
- P11 Reza Saadati Fard, Multimodal Neural Networks for Chronic Wound Decision Support, master's thesis, WPI Computer Science Dept., May 2023 – Date. Reader: Daniel Reichmann
- P12 Palawat Busaranuvong, WPI Data Science Program, July 2023 - Date
- P13 Shefalika Gautam, WPI Data Science Program, Sept. 2022 – Date. Master's thesis proposal: A Visible and infrared image fusion (VIF) Neural Networks Architecture for enhanced object classification in adverse conditions using a Correlation-Driven feature Decomposition Fusion (CDDFuse) network and Cross-Shaped Window for self-attention (CSwin) transformer.
- P14 Jiaqi Ji, WPI Computer Science Dept., master's thesis: A Deep Semantic Segmentation Framework for Digitizing Paper Electrocardiograms with Data Augmentation using a Diffusion Model, Completed May 2023.
- P15 Abdulsalam Almadani, PhD student, WPI Data Science Program, January 2021 - Date
- P16 Ali Benamara, PhD student (part time), WPI Computer Science Dept., Advisor, June 2007 - Feb 2011, Jan 2021 -Date

Emmanuel O. Agu, PhD

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Updated December 29, 2023

- P17 Atifa Sarwar, WPI Computer Science Department, January 2020 – Date. PhD Proposal: Machine Learning Models for Passive Assessment of Covid-19 from Smart Wearable Data, April 2023.
- P18 Apiwat Ditthapron, WPI Computer Science Department, (Co-advised with Prof Adam Lammert), August 2019 – Date. PhD Proposal: Energy-Efficient and Privacy-Preserving Neural Networks Models for Paralinguistic Health Assessment from Speech, March 2023
- P19 Wen Ge, WPI Computer Science Dept, January 2019 – Date. PhD Proposal: Accurate Continual Mobile Human Context Recognition, December 2022.
- P20 Kavin Chandrakasaran, WPI Data Science Program (co-advised with Elke Rundensteiner), January 2018 – Date. PhD Proposal: Probabilistic Topic Models for Complex Activity Recognition and Generation, December 2022.
- P21 Luke Buquicchio, WPI Data Science Program (co-advised with Elke Rundensteiner), June 2018 – Date. PhD Proposal: Deep Learning for Class Discovery, July 2023.
- P22 Wafaa Almuhammadi, WPI Computer Science Program, August 2018 – Date
- P23 Ruojun Li, WPI Electrical and Engineering Dept, June 2018 – Date. Area Exam: Smartphone-Based Gait Analyses to Detect Intoxication, August 2021

Master's Theses Advised and Co-Advised

- T1 Shefalika Gautam, A Visible and infrared image fusion (VIF) Neural Networks Architecture for enhanced object classification in adverse conditions using a Correlation-Driven feature Decomposition Fusion (CDDFuse) network and Cross-Shaped Window for self-attention (CSwin) transformer (in progress)
- T2 Grant Perkins, Pressure Ulcer stage classification from images using neural networks, WPI Computer Science Dept., December 2023.
- T3 Jiaqi Ji, WPI Computer Science Dept., master's thesis: A Deep Semantic Segmentation Framework for Digitizing Paper Electrocardiograms with Data Augmentation using a Diffusion Model, May 2023.
- T4 Oleksandr Semenov, Machine Learning Estimation of COVID-19 Social Distance Using Smartphone Sensor Data, WPI Electrical and Computer Engineering Dept. Sept. 2021 (yielded papers J23, C26)
- T5 Apiwat Ditthapron, Speech-based Traumatic Brain Injury (TBI) assessment using deep learning methods with limited labeled data, WPI Computer Science Dept. co-advisor Adam Lammert (Biomedical Engineering Dept.), May 2021 (yielded paper C25)
- T6 Srinarayan Srikanthan, Advance Flu Symptom prediction using LSTM shared memory based multitask learning with deep clustering, WPI Comp. Science Dept., May 2021 (yielded paper C27)
- T7 Shreesha Narasimha Murthy, Passive Diagnosis of COVID-19 using Voice and Respiratory data, WPI Computer Science Dept., May 2021 (yielded paper C29)
- T8 Florina Asani, TBI sensing in smartphone users using a sequence-to-sequence attention-based temporal model for semi-supervised learning with co-training, WPI Computer Science Dept., May 2021 (yielded paper J18)
- T9 Bhoomi Patel, Predicting TBI by using Smartphone-sensed mobility patterns, gait, and balance, WPI Computer Science Dept., May 2021 (yielded paper C22)

Emmanuel O. Agu, PhD

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Updated December 29, 2023

- T10 Songlin Hou, Learning-Based Bidirectional Illumination Enhancement Network High Dynamic Range (HDR) Wound Image Analysis, WPI Computer Science Dept., May 2021 (yielded paper C31)
- T11 Akshay Iyer, Characterizing the Effects of Adverse Lighting on Semantic Segmentation of Wound Images and Mitigation using a Deep Retinex Model WPI Robotics Engineering Program, completed April 2020.
- T12 Luke Buquicchio, Open Set Classification of Smartphone Context, Data Science Program Masters Thesis: co-advisor: Elke Rundensteiner, October 2020 (yielded paper C21)
- T13 Walter Gerych, Versatile Anomaly Detection with Outlier Preserving Distribution Mapping Autoencoders, Data Science Program Masters Thesis: co-Advisor with Elke Rundensteiner Reader: Randy Paffenroth. December 2019.
- T14 Holly Nguyen, Machine Learning Models for Synthesizing Actionable Care Decisions on Lower Extremity Wound Images, Computer Science Dept Thesis, Advisor. Reader: Dmitry Korkin, completed April 2019 (yielded paper J34)
- T15 Shubham Jain, Image Normalization for Wound Assessment, WPI Robotics Engineering Dept, completed April 2019.
- T16 Chai Nimkar, AlcoGait Gamification, IMGD Master's thesis, Advisor. Completed May 2018. Reader: Gillian Smith
- T17 Nichole Etienne, Investigating Transfer Learning of Smartphone-Sensed Stress in a College Population, WPI Comp Science Dept., Advisor. Reader: Dmitry Korkin Completed May 2017. (yielded paper C36)
- T18 Christina Aiello, Investigating Gyroscope Sway Features, Normalization, and Personalization in Detecting Intoxication in Smartphone Users, WPI Comp Science Dept., Advisor. Completed April 2016. Reader: Lane Harrison (yielded paper C65)
- T19 Gauri Pulekar, Socialoscope: Sensing User Loneliness and Its Interactions with Personality Types, WPI Comp Science Dept., Advisor. Completed April 2016. Reader: Chuck Rich (yielded paper C64)
- T20 Muxi Qi, Comparing Signal Processing Features for Detecting Intoxication using Smartphones, WPI Electrical & Computer Engr Dept., Advisor. Completed April 2016
- T21 William DiSanto, scattering in Participating Media using Light Propagation Volumes (LPV), WPI Comp Science Dept., Advisor. (Student completed non-thesis option).
- T22 Che Sun, master's student, Real-Time Global Illumination using Voxel-Based Ray-Bundles, WPI Computer Science Dept., Advisor. Completed Dec 2015. Reader: Robert Lindeman. (Yielded paper J51)
- T23 Sia Mortazavi, Before Eternity: An Adventure Game Inspired by Sufi Mysticism, WPI Interactive Media and Game Design (IMGD) Program, Completed May 2015. Co-advised with Brian Moriarity
- T24 Qian He, master's student, A Context-Aware Smartphone Application for Mitigating Barriers to Physical Activities, WPI Computer Science Dept., Advisor Completed October 2014 (yielded paper C79)
- T25 Damon Blanchette, Adaptive Spectral Mapping for Real-time Dispersive Refraction, master's student, WPI Computer Science Dept., Advisor, Completed January 2012. (yielded papers J55, J57)

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Updated December 29, 2023

- T26 Kevin Yang, MS Thesis, "Algorithm Acceleration with GPGPU, WPI Electrical and Computer Engineering (ECE) Dept., (co-advisor with Xinming Huang), completed Dec 2011
- T27 Juan Li, master's thesis, Application-Directed DVFS using Multiple Clock Domains on Graphics Hardware, WPI Computer Science Dept., Advisor, completed January 2009
- T28 Brandon Light, Energy Efficient Photon Mapping Masters thesis, WPI Computer Science Dept., Advisor. Completed May 2007.
- T29 Peter Lohrmann, Energy-Efficient Ray Tracing of Static Scenes on Programmable Mobile GPUs, master's student, WPI Computer Science Dept., Advisor, (co-advisor: Robert Lindeman). Completed December 2006 (yielded paper C89)
- T30 Chen-Hao Chang, The Study of Energy Consumption of Accelerations Structures for CPU and GPU Ray Tracing, master's thesis, WPI Computer Science Dept., advisor, (co-advisor: Robert Lindeman). Completed December 2006 (yielded paper C89)
- T31 Clifford Lindsay, Real-Time Rendering of Wavelength-Dependent Phenomena Using Spherical Harmonics, master's thesis, WPI Computer Science Dept., Advisor. Completed December 2006 (yielded J64, Po18)
- T32 Kutty Banerjee, Remote Execution for Mobile 3D graphics, master's Thesis, WPI Computer Science Dept., Advisor. Completed May 2005. (yielded paper C99)

PhD Exams Committees and Research Qualifiers

- Mahdi Elhousni, Multi-Modal Visual Mapping and Localization, WPI Electrical and Computer Engineering Dept, Area Exam, Advisor: Xinming Huang, May 2022
- Zhuoran Su, Diagnostic Exam Committee, WPI Electrical Exam, Sept 2021
- Shengmeng Liu, Online Games and Network Latency Compensation Techniques, WPI Computer Science Dept., Research Qualifier, Advisor: Mark Claypool, January 2020
- Shaoju Wu, PhD Exam Committee, WPI Biomedical Engineering Department, Advisor Songbai Ji, in progress
- Yishuang Geng, Area Exam, Advisor Kaveh Pahlavan WPI Electrical and Computer Engineering Department, advisor Xinming Huang, in progress
- Maryam Hasan, Directed Research (co-advised with Elke Rundensteiner), Computer Science Dept., Fall 2013
- Jin Zhao, Feature Algorithms and Application on FPGA, WPI Electrical and Computer Engineering Department, advisor Xinming Huang, April 2015
- Feng Li, PhD student, WPI Computer Science Dept., advisors Mark Claypool and Robert Kinicki, research qualifier, Spring 2007
- Mingzhe Li, PhD student, WPI Computer Science Dept., advisors Mark Claypool and Robert Kinicki, comprehensive exams, 2006
- Mingzhe Li, PhD student, WPI Computer Science Dept., advisors Mark Claypool and Robert Kinicki, research qualifier, 2004

Emmanuel O. Agu, PhD

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Updated December 29, 2023

- Choong-Soo Lee, PhD student, WPI Computer Science Dept., advisors with Mark Claypool and Robert Kinicki, research qualifier, 2004

PhD Dissertation Committee

- Sean McGovern, Constrained Coverage Motion Planning on 3D Freeform Surfaces, Robotics Engineering Department, Dissertation Committee, Advisor: Jing Xiao. July 2023
- Mahdi Elhousni, Multi-Modal Visual Mapping and Localization, WPI Electrical and Computer Engineering Dept, Advisor: Xinming Huang, May 2022
- Zhuoran Su, TBD, Area Exam Committee, WPI Electrical Exam, December 2022
- Shaoju Wu, Title Applications of Deep Learning in Brain Injury Biomechanics and Spine Image Registration, WPI Biomedical Engineering Department, Advisor Songbai Ji, July 2022
- Haadi Mombini, A Predictive Decision Support and Explanation Facility with Application for Chronic Wound Management, Advisor: Bengisu Tulu, WPI School of Business, November 2020
- Alan Ritacco, PhD student, How's My Network - A Health-Based Approach to Home Network Measurement, advisor Craig Wills, WPI Computer Science Dept., completed: Dec. 2019
- Mi Feng, Quantifying and Modeling Open-Ended Explorations of Web Visualizations, PhD, WPI Computer Science Dept, Advisor, Lane Harrison, Completed: April 16, 2019
- Abhishek Mukerji, Pattern Mining and Sense-Making Support for Enhancing the User Experience, PhD, WPI Comp. Sci Dept., Advisor: Elke Rundensteiner, completed Dec. 2018
- Yishuang Geng, Radio Propagation for Localization and Motion Tracking in Three Body Area Network Applications, PhD, WPI Electrical and Computer Engr Dept., Advisor: Kaveh Pahlavan, completed Sept 2016
- Chiying Wang, Dynamic Clustering-Modeling of Discrete Time Series, PhD, WPI Computer Science Dept., Advisors: Carolina Ruiz and Sergio Alvarez, completed April 2016
- Lei Wang, Systems Designs for Diabetic Foot Ulcer Image Assessment, PhD, WPI Electrical and Computer Engineering Department, Completed Feb 22, 2016
- Li Liu, A Personal Obstetric Ultrasound Simulator Supporting Self-Paced Training, PhD Candidate, WPI Biomedical Engineering Dept. Advisor: Peder Pedersen. Completed Dec 2015
- Chuan Lei, Large-Scale Recurring Query Processing: New Models and Optimization Techniques, PhD, WPI Comp. Sci Dept. Advisor: Elke Rundensteiner. Completed Aug 2015
- Jia Wang, Hybrid and Coordinated 3D Interaction in Immersive Virtual Environments, PhD, WPI Computer Science Dept. Advisor: Rob Lindeman. Completed April 24, 2015
- Guanqun Bao, student, PhD, WPI Electrical and Computer Engineering Department, advisor Kaveh Pahlavan, completed April 2014
- Karen Works, Targeted Prioritized Processing in Overloaded Data Stream Systems, PhD dissertation, completed November 2013
- Songxiang Gu, Body Deformation Correction for SPECT Imaging, advisor Michael Gennert, WPI Computer Science Dept., completed June 2009

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Updated December 29, 2023

- Mingzhe Li, PhD student, WPI Computer Science Dept., advisors Mark Claypool and Robert Kinicki, completed December 2006.

Master's Thesis Reader and Practicum Advisor

- Abhishek Shivdeo, Data Diversity Quantification Clustering Out of Distribution, Robotics Engineering Dept (RBE) Practicum presentation (in progress)
- Trevor Amevor, Forecasting Food Security in the United States using Machine Learning Techniques, Advisor: Dmitry Korkin (in progress)
- Connor McLoughlin, Searching for Contextual Subtasks for Semantic Segmentation, Advisor, Jacob Whitehill, completed May 2022
- Brittany Lewis, Finger-Biomechanics based Authentication, Advisor: Krishna Venkatasubramanian (in progress)
- Brett Levasseur, Impact of RLC Acknowledgements on Application Performance in 4G LTE Networks. Advisors: Mark Claypool and Bob Kinicki, 2013
- Derek MacNeil-Blackmer, Distributed Control of Multi-Robot Systems with Software Mobile Agents and ROS. Advisor: Stephen S Nestinger, WPI Mechanical Engineering Dept.
- Jack Benard, Visual Exploration of Genetic Sequence Data through Shape Projection in Xmdv Tool, Advisor: Matt Ward, (incomplete)
- Michael Putnam, A Beaconless Protocol for Improving Energy Efficiency in Wireless Sensor Networks, Advisors: Mark Claypool and Bob Kinicki, (incomplete)
- Sahel Mastoureshgh, Measurement and Method for Receiver Buffer Sizing in Video Streaming, Advisor: Mark Claypool, 2012
- Karki Rabin, Fresh Analysis of Streaming Media Stored on the Web, Advisor: Mark Claypool, 2011
- Rui Lu, Media Scaling for Power Optimization on Wireless Video Sensors, Advisor: Mark Claypool, 2007.
- Natasha Lloyd, Clutter Measurement and Reduction for Enhanced Information Visualization, Advisor: Matt Ward, 2005
- Kerry McKay, Tradeoffs between Energy and Security in Wireless Networks, Advisor: Fernando Colon-Osorio, 2005
- Anilkumar Patro, Pixel Oriented Visualization in XmdvTool, Advisor: Matt Ward, 2004.

Master's Thesis Committees

- Son Nguyen, Bluetooth Packet Capture and Analysis using Wireless Product Testbed, WPI Electrical and Computer Engineering Dept., advisor: Alex Wyglinski, completed December 2020
- Donald Leo Bourque, Investigating monocular Large-Scale Direct SLAM (LSD-SLAM) and Direct Sparse Odometry (DSO), WPI Robotics Department, Advisor Michael Gennert.

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Updated December 29, 2023

- Yang Yang and Zhouchi Li, Implementation and Algorithms for In-Room Localization Technology using iBeacon, WPI Electrical and Computer Engineering Dept., advisor Kaveh Pahlavan, completed April 2016
- Julang Ying Barometer-Assisted 3D Indoor Wi-Fi Localization for Smart Phones-Map Selection and Performance Evaluation, WPI Electrical and Computer Engineering Dept., advisor Kaveh Pahlavan, completed April 2016
- Jin Zhao, Video/Image Processing on FPGA, WPI Electrical and Computer Engineering Department, advisor Xinming Huang, completed April 2015
- Guanxiong Liu, Performance of Hybrid Localization Using Inertial, RFID and Wi-Fi Signal, WPI Electrical and Computer Engr Dept., advisor Kaveh Pahlavan, completed April 2015
- Mingda Zhou, On the Accuracy of Wireless Capsule Endoscope Visual and RF Localization, WPI Electrical and Computer Engr Dept., advisor Kaveh Pahlavan, completed April 2015
- Liang Mi, A Testbed for Design and Performance Evaluation of Visual Localization Technique inside the Small Intestine, WPI Elect & Comp Engr Dept., advisor Kaveh Pahlavan, April 2015

Undergraduate Projects Advised and Co-Advised at WPI

Major Qualifying Projects (MQPs) Advised/Co-Advised (54 total)

2021-22

M1 Praise Eteng, Passive Mobile Mental Health Screening using Machine Learning, EOA 0047, Computer Science Dept, WPI, A, B and C terms 2021-22

2020-21

M2 Caitlin Enright, Orlando Aviles, Theodoros Konstantopoulous and Jean-Philippe Anthony Pierre, Smartphone Infection Tracking, EOA 0046, Computer Science Dept, WPI, A, B and C terms 2020-21 (yielded paper C17)

2019-20:

M3 Thar Min Htet, Smartphone Gait Authentication, EOA 0044, Computer Science Dept, WPI, A, B and C terms 2019-20.

M4 Saina Rezvani, Detecting Intoxication from Audio using Neural Networks, EOA 0043, Computer Science Dept, WPI, C, D (2018-19) and A term (2019-20)

2018-19:

M5 Tessa Garbely, Jesse Ying, Adam Bettigole, WPI Mobile Health Community, EOA 0042, Computer Science Dept, WPI, 2018-19.

M6 Cameron Russell Maitland, Learning Exergame Enjoyment, Computer Science Dept, WPI.

M7 Paul Roberts, Colin Willoughby, Ian Banatoski, Drunk Selfie, WPI Computer Science Dept., (yielded paper C49)

Emmanuel O. Agu, PhD

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Updated December 29, 2023

- M8 Nicholas Cheung, Sam Huang, Joseph Bremner and Quoc Ho Lam, Alcolgait Deep Learning, Computer Science Dept.
- M9 Ada Dogrucu, Aleksa Perucic, Damon Ball, Anabella Isaro, Depression Sensing, Computer Science Dept.
- M10 Derrek Rueger, Bryan Benson and Benjamin Huchley, Behavioral Authentication, Computer Science Dept.

2018-19:

- M11 Charles Lovering, Anqi Lu, Cuong Nguyen, Huyen Nguyen, Computer Science Dept, WPI, Sponsor: Microsoft Corporation (yielded papers J34, C54)

2016-17:

- M12 Arthur Dooner, Arun Donti, Stephen Lafortune and Walter Ho, Implicit Mobile Authentication
- M13 Akshay Thejaswi, Aditya Nivarthi and Daniel Beckwith, Detruncation of Attenuation Maps using Neural Networks (co-advised with Clifford Lindsay) (**Honorable Mention for Provost's Award for best MQP in Computer Science Dept., top 3 out of 46 MQPs**) (Resulted in paper C57)
- M14 Rupak Lamsal, Jules Voltaire and Matthew Nguyen, Behavior Change Contextualizer
- M15 Elijah Lee Gonzalez, Nicholas Wong, Joshua Audibert, CyPRESS Exergame Enjoyment, (co-advised with Prof Mark Claypool) (Resulted in papers C5, C66)
- M16 Jacob Watson, Andrew McAfee, Benjamin Bianchi, AlcoWatch Intoxication Detection, (**Top 5 out of 46 for Provost's Award for best MQP in Computer Science Dept.**) (Resulted in paper C58)
- M17 Mengwen Li, Deep Learning for Intelligent Transport, (co-advised with Xinming Huang, Project sponsor: MathWorks Inc.)

2015-16:

- M18 Robert Esposito and Joseph Hill, FitU, (co-advised with Robert Lindeman)
- M19 Anthony Gallo, Phillip Baumann, Fitness in Mobile Gaming (Resulted in paper C62)
- M20 Stephen Ireland, Anthony Romeo, Android Smoking Detection

2014-15:

- M21 Yong Piao, Advanced 3D Rendering
- M22 John Haas, Onder Goksaran, Wellness Gamification, (co-advised with Prof Elke Rundensteiner)
- M23 Haley Andrews, Nathan Ford, Evan Safford, SAM Fitness: An Android Wellness-Application, (co-advised with Prof Elke Rundensteiner)
- M24 Zachary Arnold, Danielle LaRose, Smartphone Gait Inference, (co-advised with Joseph Petrucelli, WPI Math Dept.) (**Provost's Award for best MQP in Computer Science Dept., 2014-15**) (Resulted in papers C72, C73)
- M25 Andrew Paon, Adam Chaulk, GPGPU for Storage Networks (Project Sponsor: EMC)

Emmanuel O. Agu, PhD

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Updated December 29, 2023

2013-14:

- M26 Edison Jimenez, Seth Crampton, Smartphone Radio App, (co-advised with Scott Barton, WPI Humanities Dept.) (Project Sponsor: WICN Public Radio, Worcester) (**nominated for best MQP in Computer Science Dept., 2013-14**)
- M27 Kevin Hufnagle, Android Photo Maps Application, (co-advised with Prof Jennifer DeWinter (humanities))

2012-13:

- M28 Greg Wheeler, Billy Estrella, Jay Miller, Homesite Insurance Smartphone application, (co-advised with Profs Matt Ward (CS), and Guillermo Salazar (CEE) project sponsor: Homesite Insurance)

2011-12:

- M29 Eric Baicker-McKee, Jing Zhang, Binh Thanh Pham, Endicia Labeler, (co-advisor: Prof David Finkel, (Project sponsor: Endicia) (**nominated for best MQP in Computer Science Dept., 2011-12**)
- M30 Jackson Fields, Real-Time GI Rendering Engine
- M31 Xiao Du, Zhaochen Liu, David Rolle, Improved Visualization of Networked Storage Metrics (co-advised with Prof Matt Ward, Project sponsor: EMC)

2010-11:

- M32 Devin Thomas, Benjamin Lipson, and Punit Dharani, RFID Navigation System for the Visually Impaired (yielded paper C82)
- M33 Evan Duderewicz, Brendan Harris, Thomas Jenkins, Ken Miyauchi, Michael Ng, Mom-O-Meter: A self-help pregnancy Android app (co-advised with Bengisu Tulu, WPI School of Business) (Resulted in paper Po13)
- M34 Nicholas Deapen, Physically Based Rendering (not completed)

2009-10:

- M35 Dickson Madison, Michael Oliver, Photorealistic Shader Effects
- M36 Ryan Lefevre and Bryan Crabtree, Mobile Social Networking Colors (**nominated for best MQP in Computer Science Dept., 2009-10**)
- M37 Eric Nadeau and Skyler Whorton, FPGA-Based Graphics Acceleration

2008-09 (On sabbatical):

- M38 Andrey Yamshchikov and Shengshi Zhao, Financial Computations on the GPU (Project Sponsor: Fidelity Investments)

2007-08:

- M39 Alexander Yeganov, Aaron Root, Chris Donnelly, 3D Mobile Game Engine
- M40 Christopher Woo, Victoria Zukas, Enhanced Game DSL with Graphics

Emmanuel O. Agu, PhD

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Updated December 29, 2023

- M41 Daisuke Abe, Corey Christous, The Effects of Task Intensity on Attention
- M42 Berk Birand, WiFi Localization
- M43 Andrew Halloran and Isaac Chanin, Wireless Sensor Network for Monitoring Applications, co-advisor with Wenjing Lou
- M44 Matthew Caulkin, Air Cargo Drop Visualization (Project Sponsor: Army research labs)

2006-07:

- M45 Pfeill Andy, ATI Catalyst Control Center Preview Application Update (Project Sponsor: ATI)

2005-06:

- M46 Bangs Andrew, Haerinck Shaun, Kluft Aubrey, Location Aware Security Application
- M47 Haag Matt, Stale Data Expiration and Store-Forward Routing (Project Sponsor: Autonomous Undersea Systems (AUSNet)) (Resulted in papers J61, C92)

2004-05:

- M48 Xiaohe Hu and Theodore Phillips, Efficient Graphics for Mobile Devices
- M49 William West, Power Consumption of Ad Hoc Routing Protocols (Resulted in paper J63)
- M50 Brendan Batchelder, Location-Aware Computing (Incomplete)
- M51 Zhuo Chen and Aram Dulyan, MPEG-4 Streaming for Mobile Devices (Co-advisor with Mark Claypool)

2003-04:

- M52 Paul Fydenkevez, Matt Gage and John Reynolds, Extreme Graphical Simplification using Images.
- M53 Tom Beigbeder, Rory Coughlan, Corey Lusher, and John Plunkett. The Effects of Packet Loss and Latency on Player Performance in Unreal Tournament 2003 (Co-advisor with Mark Claypool) (Resulted in paper C106)
- M54 Ali Taheri and Arvinder Singh, Locus: Wireless LAN Location Sensing (**Provost's Award for best MQP in Computer Science Dept., 2003-2004**) (Resulted in papers C103 and C104)
- M55 Ben Sandorfsky and Jonathan Guillory, Rendering Structural Colors (**nominated for best MQP in Computer Science Dept., 2003-2004**)

2002-03:

- M56 Randy Chong, Java BRDF Viewer (Co-advisor: Prof Matt Ward)
- M57 Nathan Sheldon, Eric Girard and Seth Borg, The Effect of Latency on Performance in Warcraft III. (Co-advisor with Mark Claypool) (Resulted in paper C108)
- M58 Brian L'Heureux, Michael McHugh and Benjamin Privett, EMS Portable Workflow, (co-advisor with Robert Kinicki) (Resulted in paper C94)

Emmanuel O. Agu, PhD

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Updated December 29, 2023

Interactive Qualifying Projects (IQPs, Undergraduate Thesis on using Technology to Solve Societal Problems) Advised/Co-Advised

- I1 Anthony Qin, Brad Scuzzarella, Christopher Bearce, Run for Fun User Studies, 2017-2018. (co-advised with Mark Claypool)
- I2 Dongjie Wang, Sam Huang, Run and Fun Measurement (co-advised with Mark Claypool) (Resulted in paper C43)
- I3 Kyle Sposato, Alexander Fitzgerald, Run for Fun predicting (co-advised with Mark Claypool) (Resulted in paper C43)
- I4 Dean Kiourtsis, Nolan James, Kevin Truc, Katelyne Sibley, Attitudes Towards Technology-Based Alcohol Interventions
- I5 Shawn Yoon Smart Technology-Based Parking (co-advised with Mohamed Eltabakh)
- I6 Alex Carly-Dorsey, James Jackman, Nicholas Massa, Smartphone Health Games
- I7 Amorn Chokchaisiripakdee, Nuttaworn Sujumnong, Latthapol Khachonkitkosol, Smartphone Health Games (Resulted in paper BC1)
- I8 Seth Martin Crampton, Tech Bible Mobile App
- I9 Muhammad Azeem, Rohit Jagini, Mandela Kiran and Kaushal Shrestha, Social Implications of Graphics Processing Units
- I10 Taryn Flagg, FCCH Website Development Plan, (Co-advised with Stanley Selkow), (Not completed)

Other Undergraduate Advising

- RE1 Faculty Mentor REU Students summer 2017, WPI REU Site: Courtney Burns (REU), and Jennifer Ha (REU), with WPI undergraduate student Andrew Schade (WPI), co-mentored by Graduate student: Ermal Toto and by Faculty Advisors: Professors E. Agu and E. Rundensteiner
 - Yielded Poster and Presentation: Using Machine Learning to Detect Depression by Voice, IEEE MIT Undergraduate Research Technology Conference, Nov 2017, <http://ieeescrpts.mit.edu/conference>

Academic Advising at WPI

My advising roster since arrival at WPI has consisted of 15-25 undergraduates and 10-15 graduate students per academic year. Several of my advisees have explicitly requested me as their advisor after taking a class with me.

Emmanuel O. Agu, PhD

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Updated December 29, 2023

SERVICE

Service to the Profession (External to WPI)

Journal Editorships (2)

PC1 Associate Editor, Int'l Journal of Wireless Information Networks, Springer

PC2 Associate Editor, Int'l Journal of Handheld Computing Research, IGI Global

Program Committees and Meeting Organization (22)

PC3 Program Committee, IEEE Connected Health: Applications, Systems and Engineering (CHASE), Washington DC, 2016, Philadelphia 2017, Washington DC 2018, Washington DC 2019, Washington DC 2020, Washington DC 2022, Delaware 2024.

PC4 Machine Learning and Human Computer Interaction Conference 2020, Singapore

PC5 IEEE TrustCom Conference 2020, Guangzhou, China

PC6 The 4th International Conference on Biological Information and Biomedical Engineering (BIBE 2020), Chengdu, China

PC7 Program Committee, IEEE COMPSAC 2019, Milwaukee, 2020, Madrid Spain.

PC8 Program Committee, Int'l Symposium on Visual Computing (ISVC), Las Vegas, 2009-2022

PC9 IEEE-NIH Healthcare Innovations and Point-of-Care Technologies (HI POCT) conference 2019, Washington DC

PC10 Program Committee, IEEE Int'l Conference on Ubiquitous Intelligence and Computing (UIC), 2017 (San Francisco), 2018 (China), also PC member Intelligent/Smart Environments track, 2019 (Leicester)

PC11 Program Committee, IARIA Int'l Conference on Informatics and Assistive Technologies for Healthcare, Medical Support and Wellbeing (HEALTHINFO) 2017, Athens, Greece, 2018, Valencia, Spain 2019

PC12 Program Committee, Third Int'l Symposium on Signal Processing, and Intelligent Recognition Systems (SIRS'17), Manipal, Karnataka, India

PC13 Technical Program Committee, IEEE Region 10 Symposium (TENSYP) 2017

PC14 Program Committee, ACM MobiHoc Workshop on Pervasive Wireless Healthcare (in conjunction with ACM MobiHoc), 2017

PC15 Program Committee, IEEE 10th Int'l Symposium on Medical Information and Communication Technology (ISMICT), 2016 (Worcester, MA), 2017 Lisbon Portugal, 2018 Sydney Australia, Oslo 2019

PC16 Program Committee, 2nd Workshop on mobile medical applications – Design and Development 2015, co-located with ACM Sensys 2015, Seoul, South Korea

PC17 Program Committee, ACM 5th Int'l Workshop on Pervasive Wireless Healthcare (MobileHealth), co-located with Mobihoc 2015

PC18 Program Committee, Workshop on mobile medical applications – Design and Development 2014, co-located with ACM Sensys 2014, Memphis, Tennessee

Emmanuel O. Agu, PhD

Computer Science Dept., Worcester Polytechnic Institute (WPI), Worcester, MA

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Updated December 29, 2023

- PC19 Technical Program Committee member, PIMRC 2011 Wireless Networks and Healthcare (WNHC) track, Toronto, Canada
- PC20 Program Committee, Eurographics Conference, Mobile Graphics track, 2010
- PC21 Program Committee, 1st Int'l Workshop on A New Generation of Malware: Models, Analysis, and Counter Measures" (MALWARE) in 2006 and 2007.
- PC22 Session co-chair, Rendering session, IASTED Visualization, Imaging, and Image Processing (VIIP 2002) conference, Malaga, Spain

Reviewer (Papers and Books)

Journal paper reviewer (20)

- RV1 Advances in Wound Care
- RV2 MDPI Sensor Journal
- RV3 IEEE Journal of Biomedical and Health Informatics (JBHI)
- RV4 ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT)
- RV5 Elsevier Computers in Biology and Medicine Journal
- RV6 Journal of Translational Engineering in Health and Medicine
- RV7 Smart Health Journal
- RV8 ACM Transactions on Graphics
- RV9 Annals of Telecommunications - Annales des Telecommunications.
- RV10 IEEE Security and Privacy Magazine
- RV11 Journal of Medical Internet Research (JMIR)
- RV12 Journal of 'Personal and Ubiquitous Computing', special issue on 'Interaction and Visualization of 3D Virtual Environments on Mobile Devices'
- RV13 Springer multimedia systems Journal
- RV14 Computer Graphics Forum Journal
- RV15 IEEE Computer Graphics & Applications (CG&A) Journal
- RV16 IEEE Transactions on Parallel and Distributed Systems
- RV17 Int'l Journal of Handheld Computing Research (IJHCR)
- RV18 IEEE Transactions on Parallel and Distributed Systems
- RV19 ACM Transactions on Mobile Computing
- RV20 IEEE Internet Computing Journal

Conference Paper reviewer (23)

- RV21 IEEE Engineering in Medicine and Biology Conference (EMBC)
- RV22 IEEE International Conference on Digital Health
- RV23 IEEE Computer Society Computers, Software, and Applications Conference (COMPSAC)
- RV24 ACM Special Interest Group on Computer Graphics (SIGGRAPH) Conference
- RV25 International Symposium on Visual Computing (ISVC)
- RV26 ACM Multimedia Systems (MMSys) Conference
- RV27 American Medical Informatics Association Symposium
- RV28 ACM Int'l Joint Conference on Pervasive and Ubiquitous Computing

Emmanuel O. Agu, PhD

Computer Science Dept., Worcester Polytechnic Institute (WPI), Worcester, MA

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Updated December 29, 2023

- RV29 IEEE Connected Health: Applications, Systems and Engineering (CHASE)
- RV30 European Association for Computer Graphics (Eurographics) Conference
- RV31 Int'l Conference on Multimedia and Expo (ICME)
- RV32 IEEE Multimedia Conference
- RV33 IEEE Wireless Communications and Networking Conference (WCNC)
- RV34 IEEE Visualization Conference
- RV35 Eurographics Symposium on Rendering (EGSR)
- RV36 IEEE 10th Int'l Symposium on Medical Information and Communication Technology (ISMICT)
- RV37 Workshop on Mobile Medical Applications (MMA), co-located with ACM Sensys
- RV38 Workshop on Massively Multiuser Virtual Environments (MMVE)
- RV39 General Purpose Computing using Graphics Processing Units (GPGPU) Workshop
- RV40 IEEE Int'l Symposium Personal, Indoor and Mobile Communications (PIMRC)
- RV41 Int'l Conference on Malware
- RV42 Computer Graphics Int'l (CGI) Conference
- RV43 1st Int'l Workshop on A New Generation of Malware: Models, Analysis, and Counter Measures" (MALWARE), co-located with IEEE IPCCC

Grant Panels/Meetings and Proposal reviews (14)

- RV44 NSF Smart and Connected Health (SCH), ad hoc proposal reviewer, Jan 2023
- RV45 HEAL Initiative: Secondary Analysis and Integration of Existing Data Related to Acute and Chronic Pain Development or Management in Humans, July 2022
- RV46 Clinical Data Management and Analysis (CDMA) study section at the CSR NIH, Feb 2022
- RV47 Medical Imaging (SBIB-10 NIH ZRG1 small business grant applications), Nov 2021
- RV48 Clinical Informatics and Digital Health Study Section, June 2021
- RV49 NSF Smart and Connected Health in Biomedical Era, April 2021
- RV50 NIH/CSR ZRG1 ETTN-M (12) Special Emphasis Panel, Small Business: Aging, Auditory, Vision and Low Vision Technologies – ETTN (12), Ad hoc reviewer, March 2021
- RV51 NIH/CSR ZRG1 HDM-E (90), Technology Assisted Clinical Informatics study section, November 2020
- RV52 NIH NIAAA ZAA1 DD (C1) Contract Review - NIH/NIAAA 018 (Alcohol Biosensor Development for Continuous Alcohol Consumption Monitoring), April 2020
- RV53 NIH/NCI Small Business Innovation Research (SBIR) topic 410: Cancer Clinical Trials Recruitment and Retention Tools for Participant Engagement, February 2020
- RV54 NSF Smart and Connected Health (SCH) CISE Research Initiation (CRII) Panel, December 2019
- RV55 Diabetes UK Funding Agency (External grant Reviewer), 2008
- RV56 Global Center for Food Systems (GCFSI) Food Systems Innovation Grants Competition, Michigan State University, 2007
- RV57 TEKES, Finnish Funding Agency for Innovation, Research Organization, Helsinki, Finland, 2004

Book Reviewer (9)

- RV58 Smartphone apps for health and wellness, Elsevier

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Updated December 29, 2023

- RV59 OpenGL ES 3.0 Programming Guide, by Aaftab Munshi, Dan Ginsburg and Dave Shreiner, Addison Wesley
- RV60 Modern Computer Networks 1st edition by Lin-Hwang-Baker, McGraw-Hill publishers
- RV61 Computer Networks, 5th edition by Andrew Tanenbaum, Prentice-Hall
- RV62 Computer Graphics with OpenGL, 3rd edition, by Hearn and Baker, Prentice-Hall
- RV63 Nitin Vaidya, Wireless Networks, Cambridge University Press
- RV64 Ron Goldman, An Integrated Intro. to Computer Graphics and Geometric Modeling, CRC
- RV65 Karri Pulli *et al*, “Mobile 3D Graphics Fundamentals”, Morgan Kaufmann
- RV66 “Computer Graphics using OpenGL” by Francis S Hill Jr. and S. Kelly, Prentice-Hall

Service to WPI

- SW1 Faculty Director, Health Delivery Institute, WPI, from July 1, 2017 – Date
 - HDI is an interdisciplinary WPI institute focused on healthcare research, thought leadership and education with over 25 faculty and over \$27 million in funding since 2009.
- SW2 Committee on Appointments and Promotions, 2021 - Date
- SW3 Search committee, Chairman’s prize, 2022-23
- SW4 Search committee, Department Head, Biology and Biotechnology (BBT) Department, 2023
- SW5 Faculty Advisory Committee, MS Degree in Global Health, 2023-
- SW6 Member Biology and Biotechnology Department Head search committee 2023
- SW7 Lead judge, Computer Science, Data Science and Cybersecurity, Graduate Research, and Innovation Exchange (GRIE), 2023
- SW8 Panelist, WPI Research Solutions Institute (RSI) NIH workshop for faculty interested in pursuing NIH funding for their research, January 17, 2023
- SW9 Mental Health and Well-Being (MHWB) Task force, Sept 2021 – March 2022.
- SW10 President’s nominee, WPI Faculty Review Committee (FRC), December 2019 – Date
- SW11 Science, Engineering, and Innovation for Global Development Program, WPI Global School, January 2020 – Date
- SW12 Affiliated Faculty, Robotics Engineering, WPI, July 2018 – Date
- SW13 Affiliated Faculty, Biomedical Engineering, WPI, July 2018 – Date
- SW14 Affiliated Faculty, Electrical & Computer Engineering Dept., WPI, July 2018 – Date
- SW15 Affiliated Faculty, WPI Data Science Program, 2013 – Date
- SW16 Affiliated Faculty, WPI Bioinformatics Program, 2011 – Date
- SW17 Affiliated Faculty, WPI Interactive Media & Game Dev. (IMGD) Program, 2005 – Date
- SW18 Member Undergraduate Research Advisory Board (Chair Suzanne Weekes), 2019 - Date
- SW19 Member, co-group leader, Provost’s Bio-X initiative
- SW20 Mentor, Arts & Science Summer Research Experience for Undergraduates 2018 (Mentee: Adonay Resom)

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Updated December 29, 2023

- SW21 Member, Innovation and Entrepreneurship Campaign Planning Focus Group, 2018
- SW22 Review committee, School of Arts and Science (A&S) summer research experience for undergraduates, April 2018
- SW23 Member, President's Innovation and Entrepreneurship Center Committee, 2016-Date
- SW24 Member, Faculty Steering committee, Health Delivery Institute, WPI, 2010 – Date
- SW25 Affiliated Faculty, WPI Electrical & Computer Engineering Dept, July 2015 - Date
- SW26 Faculty member, Center for Wireless Information Network Studies (CWINS), Electrical and Computer Engineering Dept., WPI, 2002 – Date
- SW27 CWINS is the world's first wireless research lab, founded by Prof Kaveh Pahlaven (ECE)
- SW28 Faculty member, WPI Wireless LAN Research Laboratory (WLRL) at WPI
- SW29 Judge, GRIE Poster competition, WPI, 2015
- SW30 Judge, GRAD Poster competition, WPI, 2006 & 2007
- SW31 Member, WPI President's Interactive Qualifying Project (IQP) judging panel, 2003.

Service to WPI CS Department

- SCS1 Undergraduate Committee, WPI CS Dept., 2002-2003, July 2023 - Date
- SCS2 Graduate Coordinator, July 2021 – June 2023
- SCS3 Graduate Research Committee, WPI CS Dept., 2005-2007, 2009-2010, 2011-2013, 2015-2017, head 2021 – 2023.
- SCS4 Graduate admissions committee, WPI CS Dept., 2004-2005, head 2021 - 2023
- SCS5 Tenure Committee, WPI CS Dept, 2019 - 2021
- SCS6 Hiring Committee, WPI Computer Science Dept., 2015-16, 2016-17, 2019-20
- SCS7 Screening committee, IMGD serious games hire.
- SCS8 Coach, Computer Science Graduate Student Participants, I3 Innovation competition 2013
- SCS9 Promotions Committee, WPI CS Dept., 2005-2007, 2009-2010
- SCS10 Technical Report Coordinator, WPI CS Dept, 2014-2021
- SCS11 Selection Committee, Lee Becker scholarship, 2013
- SCS12 Coordinator, Image Science Research Group (ISRG), 2003-2004, 2016-2017
- SCS13 Founder and coordinator, Mobile Graphics Research Group (MGRG), 2003-date
- SCS14 Education committee, WPI CS Dept., 2003-2004
- SCS15 Member, WPI, CS building committee, 2002-2003, 2003-2004

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Service to the Community

- Guest speaker, National Society of Black Engineers, WPI Chapter, November 8, 2023
- Mentor, African students, Partnership for skills in Applied Sciences, Engineering and Technology (PASET) Program, World Bank, 2018-Date
- Organizing committee, Woo Health Hack Hackathon (WooHacks) (jointly organized by UMass Medical School and all 7 Worcester Colleges), November 2019
- Mentor, Rachel Davis-Martin, K23 grant application, UMass Medical School (aims to aggregate biosensors, smartphone data, and EMA to create a technology enabled Technology Enabled Monitor of Alcohol Detoxification (TEMAD, clinical tool that measures alcohol withdrawals)
- Session Chair and Organizer, World Bank Workshop for Math, and Science for Sub-Saharan Africa (workshop to develop modules and train sub-saharan Africans to improve dissemination of STEM skills), May 2017
- Guest speaker, Mathematics in Computer Graphics and Games, at Mathematics Institute for Secondary Teaching, hosted by Suzanne Weekes and Luca Capogna, 2014, 2015, 2017.
- Guest speaker, Bancroft High school, Talk on the Igbo culture, 2008.
- Guest speaker, GEM: Graduate Degrees for Minorities in Engineering and Science Program, Boston University, October 2006.
- Guest speaker, WPI MASTER program for minorities to strengthen minority high school student's skills and abilities in math, engineering and science, November 2, 2005
- Guest speaker, WPI MASTER program for minorities to strengthen minority high school student's skills and abilities in math, engineering and science, February 16, 2005

Awards/Honors Related to Service

- WPI Faculty Recognition Award for significant funding in research, 2020
- WPI Faculty Recognition Award for Promotion to Full Professor, 2019
- WPI Faculty Recognition Award for being Director of the Health Delivery Institute (HDI), 2017