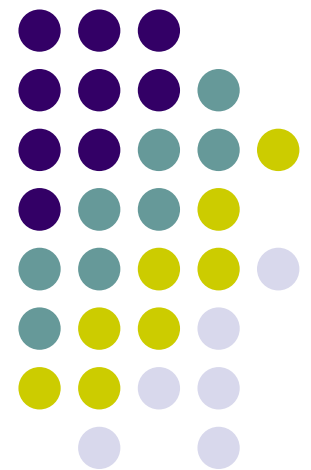


**CS 528 Mobile and Ubiquitous
Computing
Final Submissions and Writing**

Emmanuel Agu

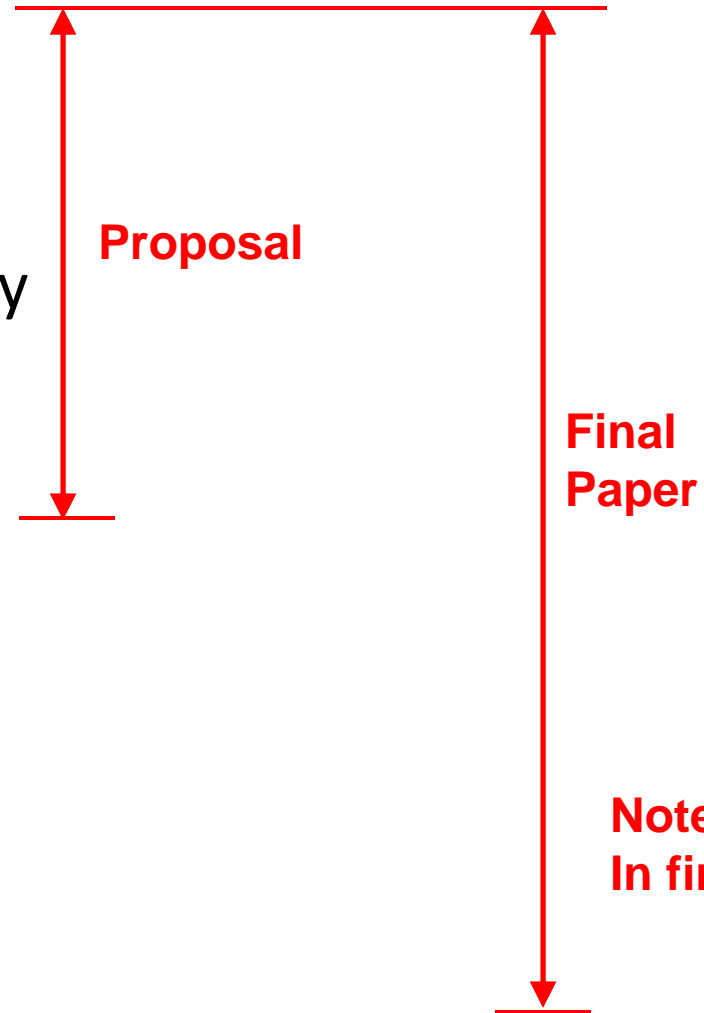




Recall: Typical Paper

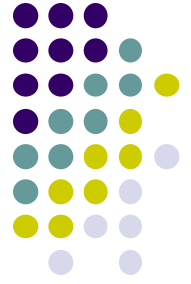
- Introduction
- Related Work
- Approach/methodology
- Implementation
- **Project timeline**

- Evaluation/Results
- Discussion
- Conclusion
- Future Work



**Note: No timeline
In final paper**

Today: Tips Based on Talk by Jim Kurose



- Jim Kurose, 10 tips for Writing papers, ConeXt Students Workshop 2006

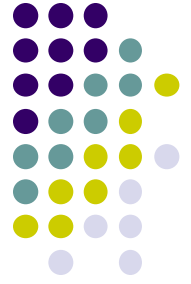


1: Tell me a story

- Think! what is “elevator pitch” of your story?

elevator pitch = short, can be given during elevator ride

- Story *not* what you did (boring?), but
 - ❖ what is interesting, shown, new ideas, new insights
 - ❖ why interesting, important?
- why is story interesting to others?
 - ❖ Big takeaways, hot topic, unexpected results?
- **Know your story!** Repeat it 3 times (abs, intro, concl)
- **Example story:** We present CrowdSense@Place (CSP), a framework that exploits a previously untapped resource – opportunistically captured images and audio clips from smartphones – to link place visits with place categories (e.g., store, restaurant)



2. Write top down

- Humans think top down!
- Summarize first, then give details
 - Examples?
 1. Introduction summarizes/previews all paper sections
 2. First paragraph of each section summarizes/previews entire section
 3. First 2 sentences of paragraph summarizes entire paragraph. Rest of para is details



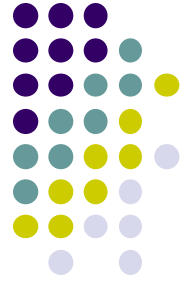
3 Introduction: crucial, formulaic

- If reader unexcited by intro? loses interest
- May use recipe:
 - **para. 1:** motivate/stats broad problem area, why important?
 - E.g. Obesity-related ailments costs US economy \$160 billion/yr
 - **para. 2:** narrow down: what specific problem do you attack?
 - Lack of adequate tools for effective self-management of overall wellbeing and health
 - **para. 3:** “In the paper, we present....”: most crucial paragraph, tell your elevator pitch (your story!!)
 - We present BeWell, a personal health application for smartphones
 - **para. 4:** how different/better/relates to other work
 - **para. 5:** “The remainder of this paper is as follows....”





3b Related Work: Very Important

- Many readers will think your work already done before
- Good related work proves them wrong
- Shows you've seen most existing stuff
- Builds confidence in you
- Each (group of) sentence describes what others have done, how your work is different
 - **Example:** SenseCam [12] is a life logging application. It takes pictures of the user's everyday life. However, it involves very limited image processing
- Describe other people's work briefly but clearly



4. Master organized writing

- Organize!! Organize!! Organize!!!
- paragraph = ordered, related sentences
- First 1 or 2 sentences
 - sets context for paragraph
 - May tie to previous paragraph
- sentences in paragraph should have logical narrative flow
- **Inverse relationship:**
 - Time you spend writing  vs time reader spends reading 



5a. Put yourself in reader's shoes

- less is more: *take the time to write less*
- readers hate working to understand (like you)
 - won't "dig" to get story, understand context, results
 - Help the reader!!!!
 - State where "story" is going, where we are frequently
 - good: "e.g., Having seen that ... let us next develop a model for Let Z be"
 - bad: "Let Z be"
- write for reader, not for yourself
 - Think of what reader knows/not know -> want/not want?



5b. Put yourself in reader's shoes

- page upon page of dense text is *no fun* to read
 - avoid tiny fonts, small margins
 - create openness with white space: figures, lists, tables
- Put enough context/information for reader
 - no one can read your mind. **Think aloud!!!**
 - no one same background as you. Explain anything readers don't know
 - Define all unknown terms/notation. Even 1 sentence helps
 - **Example: Facebook** is a social utility that connects people with friends and others who work, study and live around them



6. No one (not even your mother) is as interested in this topic as you

- Be (or appear) interested in work!!!
- But don't force feed the fish (too much stuff)
- don't overload reader with 40 graphs:
 - Can't graph all variables
 - Decide main points then choose graphs to convey points
- don't overload reader with pages of equations
 - put long derivations/proofs in appendix,
 - provide main equations, sketch of proof in paper



7. Results: State Results carefully

- clearly state all **assumptions** (for experiments)
- **Reproducibility**: include all experiment setup, parameters needed for reader to recreate experiment
- Make sure statistical results are presented correctly:
 - E.g: averages, confidence intervals, CDFs
 - If not sure, consult statistics book
- Are results presented representative?
 - or just a corner case that makes the point you want to make

8. Don't overstate/understate your results



- overstatement mistake:
 - “We show that X is prevalent in the Internet”
 - “We show that X is better than Y”when only actually shown for one/small/limited cases
- understatement mistake: fail to consider broader implications of your work
 - if your result is small, interest will be small
 - “rock the world”



9. Study the art of writing

- writing well gives you an “unfair advantage”
- *writing well matters in getting your work published in top venues*
- highly recommended:
 - *The Elements of Style*, W. Strunk, E.B. White, Macmillan Publishing, 1979
 - *Writing for Computer Science: The Art of Effective Communication*, Justin Sobel, Springer 1997.
- who do *you* think are the best writers in your area: *study their style*



10. Good writing takes Time

- give yourself time to write, reflect, rewrite, refine
- give others a chance to review, give feedback
 - get a reader's point of view
 - find a good writer/editor to critique your writing
- starting a paper three days before deadline, while results are still being generated, = Failure!!!
- For instance: You can already write introduction, related work sections of your paper. Start now!!!



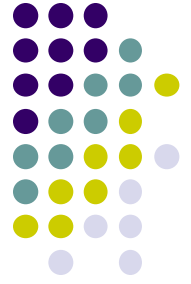
Final Words



Finishing up

- Last class next week: all groups present (6 mins)
- Final submissions due last day of classes (May 3, 11.59PM)
- Submit zip file with your:
 - Final paper
 - Final presentation slides
 - Code
 - Apk

Thesis



- I can advise both CS and ECE theses
- If interested in topics in this field, email me, talk to me
- **CS students:** ubicomp, detection, classification from sensors
- **Examples:**
 - Detect BAC from gait (accelerometer, gyroscope), loneliness (Christina Aiello)
 - Detect loneliness from communication, soft sensors (Gauri)
 - Detect stress from smartphone behaviors (Nichole Etienne)



Thesis

- **ECE students:** power efficiency, power measurements, signal processing, etc
- **Examples:**
 - Compare signal processing features (wavelet, frequency, time domain, etc) for BAC detection (Muxi Qi)
- **Other ideas?**
 - Detect mood, stress, from voice
- Most topics explored in this class are possible