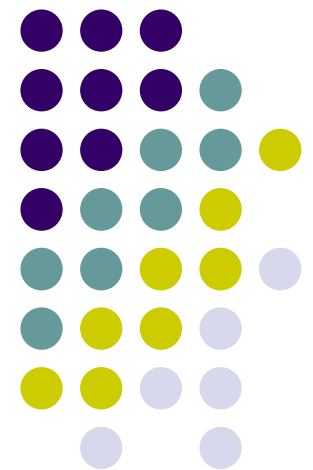# CS 525M Mobile and Ubiquitous Computing
Final Submissions and Writing
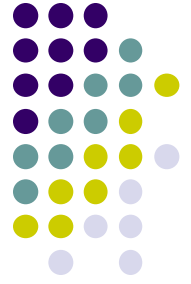
Emmanuel Agu

Recall: The Paper Structure

- Abstract

- Introduction: Motivate, summarize, preview

- Related Work: shoulders of giants

- Methodology/Design

- Implementation

- Experiments/Results

- Conclusion

- Future Work: Future work is earned

Today: Tips Based on Talk by Jim Kurose

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

1: Tell me a story
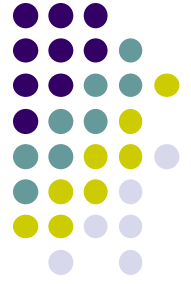
- Think! what is "elevator pitch" of your story?

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)
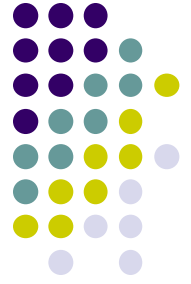
2. Write top down

- 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 ⬇
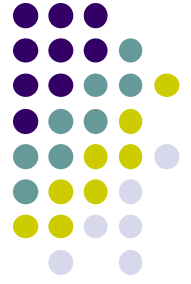
5a. Put yourself in reader's shoes

- 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 openess 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,
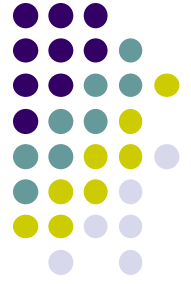 - provide main equations, sketch of proof in paper

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
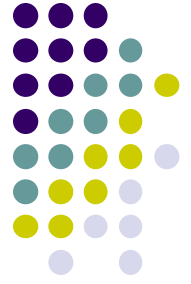
- overstatement mistake:
  - "We show that X is prevalent in the Internet"
  - "We show that X is better than Y"

  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*
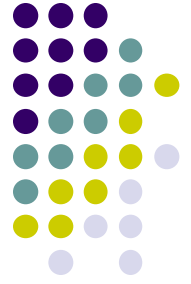
10. Good writing takes Time

- 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!!!