Class Introduction: Mobile and Cloud Computing

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UCL Computer Science

COMPM038/COMPGZ06
9th January 2013

Staff and office hours

- Instructors
  - Kyle Jamieson
    - Office hours: MPEB 7.02
      Thu 9–10:00 AM ext. 31390
  - Brad Karp
    - Office hours: MPEB 7.05
      Mon 4:00–5:00 PM ext. 30406
- Teaching Assistant
  - Georgios Nikolaidis
- Office hours begin next week
- Time reserved for answering your questions
- Come to office hours!

Meeting times and locations

- Wednesday, 11:00-12:30 PM, Foster Court 114
- Fridays, 9:30-11:00 AM, Foster Court 233

- Lecture will usually run 90 minutes
- Midterms on selected Mondays (check class website calendar or UCL common timetable)
- No lecture week of 11th February (reading week)

Readings

- ≈ 25 research papers:
  - wireless networking
  - mobile computing
  - data center services
  - mobile application security
- Available on class web page; print these
- All readings are examinable

Readings, Lectures, and Lecture Notes

- Readings must be done before lecture; **lecture assumes that you have done so**
- Lecture notes will be posted to the class website soon after lecture
- Class calendar shows all reading assignments day by day

One-Pagers: Short questions on readings

- A question on one reading for each lecture will appear in calendar (posted at least 48 hours before lecture)
- You must turn in a 200- to 500-word answer in hardcopy at the **start of lecture**
- Marked on 0-2 scale:
  - 0: not turned in at start of lecture, or doesn't meaningfully answer question
  - 1: answers the question asked
  - 2: precisely, correctly, thoroughly answers the question asked
- All of equal weight; total contribution to final mark: 15%
- **Late one-pagers will not be accepted,** unless severe, documented extenuating circumstances are present

Paper presentations

- Students form groups; each group chooses one paper to present
- Student groups present in last two weeks of class; **these papers also examinable for all**
- Presentation must:
  - Clearly explain ideas in paper
  - Constructively critique ideas and results in paper
- List of papers to choose from posted next week on class web site
- Papers given on first-come, first-served basis: form groups and choose papers quickly!
- Presentation contributes **10% of class total marks**

Grading

- Final grade components:
  - One-pagers: 15%
  - Paper presentation: 10%
  - Three mid-term exams: 25% each
- Mid-term exams:
  - Monday, 28th January
  - Monday, 25th February
  - Friday, 22rd March
  - Focus on papers in immediately-prior third of class
  - All prior material examinable
  - Absence must be cleared by severe, documented extenuating circumstances

Class communication

- Class web page:

`http://www.cs.ucl.ac.uk/staff/K.Jamieson/gz06/s2013`

  - Detailed calendar, coursework, class policies, announcements, and errata
  - Your responsibility: **check web page daily!**

- News and announcements forum
  - Available on Piazza web page for M038/GZ06
  - Your responsibility: **check your UCL email daily!**

Class communication (cont'd)

- Piazza private questions
  - Reaches class staff only
  - Use it for most questions
  - Staff may tag questions and answers of general interest to be visible to the class
  - Please **use Piazza for class-related email**, **not individual staff's email addresses**
    - Any of us will reply, so **faster response time**

Academic honesty

- All one-pagers must be completed individually; paper presentations must be written by your group alone
- May discuss readings with others
- May not discuss details of your one-pager answer with others
- May not show your answer to others (in this year or future years)
- May not look at others' answers (this year or prior years)

Academic honesty (cont'd)

- Don't copy text: you will likely be caught!

- Penalty for copying: Automatic zero marks and referral for disciplinary action by UCL (usually leads to exclusion from all exams at UCL)

Our Other Important Agenda

- Introduce you to networking research
- Focus on hot topics, e.g.,
  - Multi-hop wireless ("mesh") networks, e.g., network entire city using almost entirely wireless infrastructure
  - Mobile computing: applications for smart phones and the cloud
  - Cloud/Data-center computing: designing scalable, network-accessible storage and computation

Projects

- Material in this class is a great basis for NCS Master's projects
- Mobile devices will be made available to those interested in pursuing projects in mobile and cloud computing
  - Blackberry, Android smartphones

Why are we here?

- Learn about fundamental problems in networked systems
  - Design for scalability, robustness in large-scale, aggressively distributed systems
  - Gain perspective on competing designs
- Learn to think critically about quality of research papers; so you can do good research yourself
- Acquire taste in research
- Ground rules:
  - Feel free to criticize/defend a paper, or our take on it
  - Any comment can lead to bounded discussion

Evaluating a paper

- Important, relevant problem? Clever idea?

Orthogonal!

- Reasonable assumptions and models?
- Longer ago published, more you can judge impact:
  - Does everyone use systems now derived from it?
- Recent papers: more on cleverness, promise
- Other contributions possible
  - Thorough investigation of complex phenomenon
  - Comparison that brings sense to an area

How to read a research paper critically

- Take notes as you read
  - Question assumptions, importance of problem, important effects not mentioned by authors
  - Write questions to track what you don't understand
- Don't let ideas or design details pass until you understand them
  - May need to re-read a paragraph or section many times, or even discuss it with peers
  - You can't fully understand if the design is good unless you understand all the details: be vigilant!
- **Don't presume authors' assumptions or design choices correct simply because paper was published!**

Summary: M038/GZ06

- One research paper (occasionally more) to read per lecture
  - Expected to read papers **before arriving at lecture**
  - Lectures consist largely of discussion of assigned reading: difficult to follow if you haven't read paper
  - Many topics, fast pace
  - All papers examinable
- Emphasis on **critical reading** of papers
- Emphasis on **fundamental problems** in networked systems
  - Design for scalability, robustness in large-scale, aggressively distributed systems

Next time

- This Friday, 9:30 AM in Foster Court 233
  - Mesh networks: Roofnet (BK)
- Paper and one-pager already on class website:

`http://www.cs.ucl.ac.uk/staff/K.Jamieson/gz06/s2013`

- Your responsibility: **go to website, download and read paper, write a one-pager for beginning of class (9:30 AM) Friday**