Class Introduction: Mobile and Cloud Computing

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UCL Computer Science

M038/GZ06
13th January 2016
Staff and Office Hours

- **Instructors**
  - Brad Karp
    - Office hours: MPEB 6.20
      - Wed 5–6 PM, ext. 30406

- **Teaching Assistant**
  - Georgios Nikolaidis
    - Office hours: MPEB 7th floor lobby,
      - Mon 5:30–6:30 PM, ext. 30400

- Office hours begin next week
- Time reserved for answering your questions
- Use office hours to your advantage!
Meeting Times and Locations

- Wednesday, 11:00-12:30 PM: Birkbeck Malet Street, Room 255
- Friday, 10:00-11:30 AM: Birkbeck Malet Street, Room 254

- Lecture will usually run 90 minutes
- Midterm exams on two Mondays, one Thursday (shown on GZ06 calendar web page and UCL common timetable)
- No lecture week of 15th February (reading week)
Readings

• ~25 research papers:
  – wireless networking
  – mobile computing
  – data center services

• Available on class web page; print them yourself

• 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 there are severe, documented extenuating circumstances
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 1\textsuperscript{st} February, 11 AM, Chadwick G08
  - Monday 29\textsuperscript{th} February, 11 AM, Chadwick G08
  - Thursday 24\textsuperscript{th} March, time and room TBA
  - Focus on papers in immediately-prior third of class
  - All prior material examinable
  - Absence can only be excused by severe, documented extenuating circumstances
Class Communication

• Class web page:
  http://www.cs.ucl.ac.uk/staff/B.Karp/gz06/s2016
  – Detailed calendar, coursework, class policies, announcements, and errata
  – Your responsibility: check web page daily!

• News and discussion forum
  – Available on Piazza web page for M038/GZ06
  – Your responsibilities:
    • Enroll in Piazza site NOW
    • Check your UCL email daily!
Class Communication (cont’d)

• Piazza private questions
  – Reach class staff only
  – Use only for grade-related or CW-answer-related 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
    • Either 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 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 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 smartphones and the cloud
  – Cloud/Data-center computing: designing scalable, network-accessible storage and computation
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, 10 AM in Birkbeck Malet Street, 254
  – Mesh networks: Roofnet
• Paper and one-pager already on GZ06 class web site:
  http://www.cs.ucl.ac.uk/staff/B.Karp/gz06/s2016

• Your responsibility: go to web site, download and read paper, write a one-pager and hand in at beginning of class (11 AM) Friday