Class Introduction: Mobile and Cloud Computing

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UCL Computer Science

COMPM038/COMPGZ06
11th January 2012
Staff and office hours

• Instructors
  – Kyle Jamieson
    • Office hours: MPEB 7.02
      Thu 4–5:30 PM ext. 31390
  – Brad Karp
    • Office hours: MPEB 7.05
      Tue 5:30–6:30 PM ext. 30406

• Teaching Assistant
  – Georgios Nikolaidis
    • Office hours: MPEB 7.22 Fri 2:00–3:00 PM ext. 30390

• Office hours begin next week
• Time reserved for answering your questions
• Come to office hours!
Meeting times and locations

• Tuesdays, 4:00-5:30 PM, Christopher Ingold XLG1 Chemistry LT
• Fridays, 9:30-11:00 AM, Roberts 309

• Lecture will usually run 90 minutes
• Midterms on selected Mondays (check class website calendar or UCL common timetable)
• No lecture week of 13th 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, 30\(^{th}\) January
  – Monday, 27\(^{th}\) February
  – Friday, 23\(^{rd}\) 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/B.Karp/gz06/s2012
  - Detailed calendar, coursework, class policies, announcements, and errata
  - Your responsibility: check web page daily!

- News and announcements forum
  - Available on UCL Moodle web page for M038/GZ06
  - Recent news summarized on official (non-Moodle) M038/GZ06 front page
  - Archived on web; also emails all enrolled students
  - You should be automatically granted access to the Moodle web page; if not use the Moodle enrollment key
  - Your responsibility: check your UCL email daily!
Class communication (cont’d)

• Staff mailing list:

  
gz06-staff@ <department’s domain>

  – Reaches class staff only
  – Use it for most questions
  – Staff may forward questions and answers of general interest to the class via the web forum
  – Please use gz06-staff 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 Roberts 309
  – Mesh networks: Roofnet (BK)

• Paper and one-pager already on class website:
  http://www.cs.ucl.ac.uk/staff/B.Karp/gz06/s2012

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