Introduction to Graduate Studies

To do …

- ❑ A class overview

Welcome!

- Who we are
  - Fabián Bustamante, Prof
    - Originally from Patagonia, Argentina
    - Work on networks and distributed system
    - Random: played rugby for 10+ years, now run marathons
  - James Newman, TA

- Who you are … in a minute

Goals – Make the big picture clear to you

- Why am I doing a PhD?

- What job am I ultimately training for? Professor? Industry or government lab? Entrepreneur?

- What are the stages of the PhD and how am I evaluated?

Goals – Help you focused on the right goal

Great research

- What makes some research great?
- What makes some researchers great?
- How does science work, as a process?
- How is my paper reviewed?
- How do I write/present my research?
- …

Goals – Give you basic research skills

- How do I think creatively and generate great ideas?

- How do write a great paper?

- How do I give a great talk?

- How do I become known in the field?

- How do I work well with my advisor?

Goals – and tips to improve your experience

- How do I avoid isolation and stay happy and motivated?
  - Student panel
- How do I manage my time effectively and avoid procrastination?

Goals – Introduce you to research @ NU

- Help you get on a research path that's good for you
- Faculty talks
- Project
- Assignments
- Mini-assignments

Perspective

- First-time course at Northwestern

- Borrowing heavily from Nick Feamster and Alex Gray's course at GA Tech (CS 7001)

  – We'll appreciate ideas for how to improve it
  – Make it more relevant to us

Course Assignments and Grading

- Letter Grade: A, B, or Fail

- Components of your grade:
  - 4 Mini-Assignments (20%)
  - 3 Assignments (30%)
  - Main Project (40%)
  - Participation (10%)

- Note
  - To pass, you must have more than 50% in each component AND more than 66% total points

How will grading work?

- Q: "Can I get a B, or even fail?"
  - Yes

- Q: Do grades matter?
  - PhD grades are internally expected to be A's
  - Externally, no one cares

Mini-Assignments

- MA1: Why do you want a Ph.D.? (due Wed!)
  - Purpose: Goal setting
- MA2: Time Audit Trail
  - Purpose: Time management
- MA3: Personal Web Page
  - Purpose: Start marketing yourself
- MA4: Elevator Pitch
  - Purpose: Clarify your thinking, and marketing

Assignments

- A1: Recognizing good ideas
- A2: Creating ideas
- A3: Critiquing ideas

A1: Recognizing good ideas

- Task
  - Select latest proceedings from top conference
  - Select two papers you think represent good ideas
  - Write critical evaluation: summary, why you think it's a good idea, possible future extensions, etc.
- Purpose
  - Experience reading conference proceedings, and thinking critically about research
  - Developing research "taste"

A2: Generating ideas

- Task
  - Read summaries of other students' selections from top conferences
  - Select two papers and propose a research problem or direction that is a combination of the two ideas

- Purpose
  - Experience one way to come up with an idea
  - Learn about another area outside of your own
  - Foster cross-disciplinary thinking

A3: Critiquing ideas

- Task
  - Review each other's writeups from Assignment 2 (research ideas)
  - Mock program committee meeting
- Purpose
  - Critically evaluate peers' research ideas
  - Practice writing reviews
  - Glimpse into selection/rejection process

Project

- One project
  - Can be the same as 499, but doesn't have to be
- Tasks
  - Proposal, midterm and final reports, poster
- Purpose
  - Get you started with research right away, with a tangible and perhaps publishable outcome
  - To teach skills that are complementary to performing the research itself
  - Exploration: Potentially interact/work with different professors and research groups

Participation

- It matters
  - The primary content will be delivered in lecture
  - Community-building exercise
  - Guest lectures may not post slides
- Purpose
  - Meet and interact with your peers
  - Learn the course material
  - Have fun
- We'll have to spot-check attendance…

Last but not least…

- Questions?

- Introduce yourself!
  - Name
  - Areas of interest
  - Some things you like to do