

# Introduction

## Mobile Networks (cs5461)

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# Today's Talk

- Who's Byung Choi?
- What is research?
- What is PhD/MS?
- Typical format of a research paper
- Outline of cs5461

# Who's Byung Choi?

- 1962: Born in Korea
- 1985: BE in Electronic Eng. from Yonsei U.
- 1994: MS in Computer Science from Yonsei U.
- 1995: Team leader @ LG R&D Center
- 2002: PhD in Computer Science from TAMU
- Aug 2002 – Present: Assistant Prof. @MTU

# Who's Byung Choi?

- 1985 – 1997: LG Information and Communications Lab., Korea
  - Call processing software
  - Switching system design
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- Telecommunication vs. Computer Networks
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# Who's Byung Choi?

- 1985 – 1992: Conventional TDMA switching systems (central offices)
- 1992 – 1997: ATM switches, Video on Demand (VoD) Services, IPoA (IP over ATM)
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- 
- Korean accent: hopefully decode-able for most

# What is Research?

- Try to give an answer of your own!

# Research is ...

- Something not studied by others so far
- Contributing to the body of knowledge in a specific area or topic
- Improving or enhancing existing methodologies
- Verifiable by other researchers
- Reproducible by other researchers
- More fundamental the better
- More influential the better

# Research in a nut shell

- New ideas to a given research problem
  - Looks promising by systematic argument, mathematical analysis, simulation, and/or implementation
- Research problem:
  - Fundamental vs. incremental
- How do I know a (promising) research problem?
  - Smart people find one by themselves
  - See your adviser



# PhD, MS, and BS

- What is the difference?

# Learning?

- Undergraduates learn by repeating someone else's wisdom
- Graduates learn by creating and discovering knowledge
- PhD vs. MS
  - PhD: verified independent researcher to discover and create knowledge
  - MS: tasted a (systematic) way of doing research

# Typical Format of Research Work

- Introduction to a research problem
- Related work
- System model
- Proposed idea/methodology
- Evaluation
- Conclusion
- Acknowledgment
- References

# In cs5461 we do ...

- Formulate a research problem
  - Can be your own
  - Can be from your adviser
  - Can be from Byung Choi
- A survey on the topic
- Develop a new idea or approach
- Develop a plan of evaluation of the new idea
- Get “A”
- (Marry a girl, have kids, and live happily forever!)

# How to be a tenured student?

- A tenured graduate student:
  - enjoys an academic life a lot more than necessary, say for about 10 years!
- Reasons:
  - Too ambitious
  - Not focused
  - Too lazy
  - No desire to graduate
  - Too bad adviser

# How to pick up a good adviser?

- Academic marriage!
  - Divorce is bad just like in every day human life
- If you like one without any reason, just work with him/her
- Other factors:
  - RA-ship
  - Research area
  - Personality
  - Same cultural background

# Who's your adviser?

- Average nobody in the world
- Don't know what to research for next decade
- Spend 60 – 70% of work time for teaching
- Just another nobody other than in his/her specialty
- One of mom and dad people.....
- The deal is: He/She knows how to do research!
  - You don't, even though you would claim so:-)!

# Promises: cs5461 takers are likely

- To succeed academically as they practice/taste research, the most important part of graduate level learning
- To ...
- To ...