Networking & Communications

Prof. Gil Zussman
Networking and Communications

- Computer and communication networks:
  - Need to be available anytime and anywhere, and be accessible from any device
  - Should incorporate new technologies, support/enable new classes of applications and services, and meet new requirements
  - Need to scale and adapt to types of applications, topology, mobility patterns, and heterogeneity of devices
  - Need to be easily controllable and manageable, resource and energy efficient, secure and resilient to failures and attacks
Networking – Specific Subareas

• Next-generation, high-performance networks, and future Internet architectures
• Local area, enterprise, core, and optical networks
• Wireless, mobile, and cellular networks

• Peer-to-peer and application-level networks
• Sensor networks
• Networks for the physical world
• Emerging application domains such as smart grids, clouds, and data centers
Classes

Application
Transport
Network
MAC
PHY

Networking
Communications

Analytical tools
ELEN E6770 Topic: Next Generation Networks
ELEN E6776 Topic: Content Distribution Networks
Additional Classes

• Networking (EE, CS)
  - ELEN 4901 Topic: Mobile App Development with Android
  - ELEN 4902 Topic: IoT - Intelligent Connected Systems
  - COMS 6998 Topics In Computer Science, I – Software Defined Networking
  - COMS 6998 Topics In Computer Science, I - Advanced Distributed Syst
  - COMS 6998 Topics In Computer Science, I - Topics In Networked Tags
  - COMS 6998 Topics In Computer Science, I - Cloud Computing & Big Data

• Analytical Tools (CS, IEOR)
  - CSOR 4231 (or 4246) Analysis of Algorithms I
  - IEOR - Deterministic models, Stochastic models, Optimization, Resource allocation, etc.
General Advice

• Consider classes beyond the EE dept.
  – e.g., Networking classes – in EE and CS
• Participate in a research project/s (spring or summer)
• Look for a summer internship (winter)