Systems and Networking (S&N) Track (DRAFT)

Track Description:

The systems and networking track provides students with a deep understanding of the interaction of software and hardware in computer systems and networks. Students completing this track will have acquired working knowledge of the analysis, design, and construction of complex systems software systems. Besides the core courses, students may take advanced courses in the areas of computer system design, computer architecture, networking, Internet technology, parallel and distributed programming.

Why take this track?

Employers value students graduating from the systems and networking track for their understanding of computer systems, their ability to understand and develop software, and their ability to apply a holistic approach to the systems design. Students graduating from this track will find jobs at companies performing core operating systems and networking work, including Microsoft, Google, IBM, Apple, NetApp, and Cisco. Based on feedback given to us by our industrial affiliates, we know that even employers whose core business is not in the systems area often look at the level of skill and understanding in this area as an indicator of an applicant's overall quality. The track also prepares students for top graduate programs in the systems area by offering the opportunity to collaborate with systems and networking faculty on research projects.

Associated Faculty:

Dr. Sean Arthur	Dr. Kirk Cameron	Dr. Cal Ribbens
Dr. Godmar Back	Dr. Wu Feng	Dr. Eli Tilevich
Dr. Ali Butt	Dr. Dennis Kafura	Dr. Srinidhi Varadarajan

Junior Year					
CS 3114	Data Structures and Algorithms	(3)___	CS 3304	Programming Languages	(3)___
CS 2506	Intro to Computer Organization II	(3)___	CS 3214	Computer Systems	(3)___
Free elective		(3)___	CS 3604	Professionalism in Computing	(3)___
Comm 2004	Public Speaking	(3)___	Stat 4705	Statistics for Engineers or	(3)___
Math 3134	Applied Combinatorics	(3)___	Stat 4714	Probability & Statistics for EE	
			Track-specific Elective		(3)___
Total		15	Total		15

Senior Year					
CS 41X4	Theory Course	(3)___	CS 4944	Senior Seminar	(1)___
Track-specific Elective		(3)___	CS 4284	Systems and Networking Capstone	(3)___
Track-specific Elective		(3)___	Track-specific Elective		(3)___
Engl 3764	Technical Writing	(3)___	CLE Elective		(3)___
CLE Elective		(3)___	Free Elective		(3)___
Total		15	Total		13

Students should select their 4 track-specific electives from the following list. Students must take at least 1 course from group A and at least 1 course from group B. Note that the ECE courses may be restricted to ECE majors only and require non-CS prerequisites. At least three of the four track-specific electives must be CS courses.

Group A: Networking/Parallel Systems

- CS 4254 Computer Network Architecture and Programming (pre: CS 3214)
- CS 4234 Parallel Computation (pre: CS 3214)
- CS 4244 Internet Software Development (pre: CS 3214)
- ECE 4560 Computer & Network Security Fundamentals (pre: ECE 4564)
- CS 4570/ECE 4570 Wireless Networks and Mobile Systems (pre: ECE 4564 or CS 4254)

Group B: Organization/Architecture

- CS 4504/ECE 4504: Computer Organization (pre: CS 3214)
- CS 4224 Performance Evaluation of Computer Systems (pre: 3214 and STAT 4105, 4705, or 4714)
- ECE 3534 Microprocessor System Design (pre: ECE 2504 and ENGL 3764)
- ECE 4534 Embedded System Design (pre: ECE 3534)
- ECE 4550 Real-time Systems (pre: ECE 2504 and CS 3214)

Group C: Other courses

- CS 4604 Introduction to Database Management Systems (pre: CS 3114)
- CS 4304 Compilers (pre: CS 3214)