In this course, undergraduates and graduate students read 5 selected Ph.D. dissertations or Ph.D. work within a field of computer science at a particular historical period. The course spends 2 weeks on each, finishing with a guest lecture by the author. In this first offering, the course examines an exciting time: computer architecture in the Bay Area in late 1980s to the early 1990s. The course covers the doctoral work of five leading scholars. All have made deep contributions to computer architecture and computing that influence and define the computers we use today. Students write short papers on each reading; students may replace the first reading with background reading on computer architecture.

Valerie Taylor is the Director of the Mathematics and Computer Science Division and a Distinguished Fellow at Argonne National Laboratory. She has over 25 years of research experience in HPC, with a focus on performance analysis, modeling and tuning of parallel, scientific applications. Prior to joining Argonne, she a Regents Professor and the Royce E. Wisenbaker Professor in the Department of Computer Science and Engineering at Texas A&M University. Valerie is an IEEE Fellow and ACM Fellow.

Timothy M. Pinkston is a Professor of Electrical and Computer Engineering, and Vice Dean for Faculty Affairs in USC’s Viterbi School of Engineering. During a three-year stint at the NSF (2006-2008), he served as Program Director for Computer Systems Architecture and as founding Lead Program Director of CISE’s Expeditions in Computing Program. Known for research on interconnection network routing algorithms, architectures, and efficient NoC designs, he co-authored Interconnection Networks (Appendix F) in Computer Architecture: A Quantitative Approach. Timothy is an IEEE Fellow and an ACM Fellow.

Marc Hannah works at Nvidia on products and programs to expand AI and robotics instruction in high schools and colleges. In 1982, Marc co-founded Silicon Graphics, Inc. (SGI), a pioneer in computer graphics and high performance computing, where he was Chief Scientist and chief architect for low-end and mid-range systems. He helped deliver SGI technologies to consumers, including the Nintendo-64 console. Dr. Hannah is a partner in SUDA (Strategic Urban Development Alliance), an Oakland-based development company with major projects in Oakland and Ghana. Dr. Hannah received his MS and Ph.D. in EE from Stanford University.

Mark E. Dean was the John Fisher Distinguished Professor at the University of Tennessee. Prior to joining UT, Mark was CTO of the Middle East and Africa for IBM and an IBM Fellow. Mark has developed all types of computer systems, including testing of the first gigahertz CMOS microprocessor and establishing the team that developed the Blue Gene supercomputer. He was chief engineer for the IBM PC/AT, ISA systems bus, PS/2 Model 70 & 80, and the Color Graphics Adapter in the original IBM PC. He holds three of the nine patents for the original IBM PC. Mark is a member of American Academy of Arts and Sciences and the National Academy of Engineering as well as an IEEE Fellow.

Kunle Olukotun is the Cadence Design Professor of Electrical Engineering and Computer Science at Stanford University. Kunle is a pioneer in multcore processor design and led the Stanford Hydra chip multiprocessor (CMP) research project. Kunle founded Afara Websystems to develop Niagara, the first high-throughput, low-power multicore processor for servers. Niagara derived processors power all Oracle SPARC-based servers. Kunle is a co-founder of SambaNova Systems, a new AI processor company. Kunle directs the Stanford Pervasive Parallelism Lab (PPL) and co-directs the DAWN project. Kunle is an IEEE and ACM Fellow.