Bradley R. Smith, PhD.
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Work Experience:

2012 to Present — ***Lecturer,*** Computer Science & Engineering, UC Santa Cruz

Sep, 2006 to Present — ***Adjunct Associate Professor***, Computer Science & Engineering, UC Santa Cruz

Contribute to the academic mission of the Computer Engineering Department through teaching, curriculum and program development, student advising, and research. In this capacity I have a number of notable accomplishments. I coordinated the $400K donation from Cisco of network equipment to SoE for the creation of an instructional network lab. I developed a curriculum for CE 150 (Introduction to Networks) and CE 151 (Network Administration) that integrated the new network lab into these courses. Taught the Computer Engineering "Introduction to Networks" and "Advanced Networks" classes. Developed a virtual network lab for the Advanced Networks course that duplicates the physical lab environment in a virtual machine that is run on the SoE VM infrastructure. Served on 54 Masters and PhD thesis committees, and supervised 81 independent studies. My current research is in the area of what I call the *partially-ordered Internet*.

March, 2019 to 2025 — ***Founder and CEO Curated Networks, Inc.***

July, 2018 to Aug, 2020 — ***Interim Chief Technology Officer***, UC Santa Cruz, Santa Cruz, CA

As interim ITS Chief Technology Officer (CTO) I worked with the Vice Chancellor, Information Technology (VCIT), and ITS leadership team to develop a CTO organization that continuously develops skilled technologists and aligns the technology organizations skills, architecture, standards and processes against campus goals and technology industry trends. Following the new ITS organizational model developed by the VCIT, the new CTO organization is responsible for world class engineering, operations and security teams that embrace the principles of agile for project management and lean six sigma for operations and process management. Currently on 43% rehire to help with transition.

June 2019 — ***Retired from UC Santa Cruz staff position.***

June, 2017 to June 2018 — ***Interim Vice Chancellor Information Technology***

UC Santa Cruz, Santa Cruz, CA

Responsible for providing the leadership and vision necessary to assure effective and strategic deployment of information and educational technology and information and cyber-infrastructure security for the University of California Santa Cruz campus and satellite locations.

Sep, 2006 to June, 2019 — ***Director Research and Faculty Partnerships***, Information Technology Services, UC Santa Cruz, Santa Cruz, CA

Responsible for developing strategic technologies in support of the campus mission, and for the architecture of new systems and significant enhancements to existing systems for deployment on the campus. The RFP group has directly or indirectly obtained $28M in funding to fund two new clusters for Astrophysics research, installation of physically diverse dark fiber paths to UC Santa Cruz, provide robust data center support for the Center for Biomolecular Science and Engineering (CBSE) genome.ucsc.edu, and CGHub projects, and implementation and development of a Science DMZ in support of network-intensive research on campus.

Dec, 2004 to June, 2007	***Director Core Technologies***, Information Technology Services, UC Santa Cruz, Santa Cruz, CA Manage all consolidated IT systems, network and telecommunications resources, provide a secure and stable computing environment for the campus, and collaborate with faculty to identify and pursue funding for the expansion of research and instructional infrastructure. In this role, I was part of the management team responsible for providing comprehensive consolidation of the campus IT services.
Sep, 2006 to June, 2017	***Associate Director***, Center for IT Research in the Interest of Society (CITRIS), UC Santa Cruz, Santa Cruz, CA Developed the Network Management and Operations (NMO) Lab as collaboration with Cisco Systems. Engaged in excess of 50 students over 6 years in collaborations with Cisco Engineers. Developed the concept of an "Open Source Network Lab," and began development of the OSNL web site. The goal of the OSNL is to provide an environment for instructors of network courses to share their network labs with the broader community based on the open source software model. Participated in overall operation of the Center.
April, 2004 to Nov, 2004	***Acting Assistant Dean***, School of Engineering, UC Santa Cruz, Santa Cruz, CA Serve as principal staff officer for the School of Engineering (SoE), advising the Dean and serving as the Dean's representative providing liaison with other units on a wide variety of administrative issues. Also serve as the primary lead for all SoE resource and academic planning, analysis, and organizational improvement initiatives. Major accomplishments include: completed the construction and occupancy of the Engineering 2 building, coordinated preliminary planning for the delivery of instruction at the Silicon Valley Center, coordinated initial planning for service center and information technology consolidations, and negotiated a $650,000 donation from Cisco Systems for the creation of an undergraduate network lab.
2000 to 2004	***Chief Architect***, Cenus Technologies, Inc., Scotts Valley, CA Responsible for the architecture and high-level design of state-of-the-art object routing technology. In addition to the overall architecture, additional accomplishments include design of an innovative object "forwarding table" providing compact representation of object routing information with lookup speeds in excess of one million per second, and the design of an innovative request forwarding mechanism allowing the object routing to interact transparently with most distributed storage protocols. Preparation of patent applications.
1996 to 2003	***Research Staff***, Computer Communications Research Group, Jack Baskin School of Engineering, UC Santa Cruz, Santa Cruz, CA Reporting to Prof. J.J. Garcia-Luna-Aceves, I work as acting Co-PI on two DARPA funded projects (Secure Active Internetworking, or SAINT, and Fault Tolerant Internetworks). I was co-author on the FTI proposal with Prof. Garcia-Luna. My responsibilities include research on secure multicast routing, scalable object routing, efficient policy-based routing, and a trust algebra for routing protocols. I represent the projects at regular DARPA Principal Investigator (PI) meetings, and contribute material to regular project reports.
1994 to 1996	***Computer Security and Network Consultant*** SECURITY: Firewall evaluation and installation; consulting with foreign PTT for secure provision of Internet services. NETWORK MANAGEMENT: project lead on network expansion as part of purchase of a national ISP.

Sep, 1985 to 1996	***Network and Unix Systems Manager*** Manage the development and operation of computing and network services for the School of Engineering at the University of California, Santa Cruz, and the Institute of Fluid Dynamics at the EPFL in Lausanne, Switzerland.
Jan, 1982 to Sep, 1985	***Software Engineer*** Developed software at three different companies, including two startups (Avera Corporation and CTX International) and Hewlett-Packard. Projects included graphics, database, and compiler development. Programming environment was Unix with either C or Pascal.

Publications: https://users.soe.ucsc.edu/~brad/#publications

Patents:

US 11,621,912	Bradley R. Smith, "Network Congestion Reduction Using Boolean Constrained Multipath Routing" (April 4, 2023)
US 11,134,007	Bradley R. Smith, “Network Congestion Reduction Using Boolean Constrained Multipath Routing” (September 28, 2021)
US 9,197,544	Bradley R. Smith, "Comprehensive multipath routing for congestion and quality-of-service in communication networks" (November 24, 2015)
US 7,725,596	J.J. Garcia-Luna-Aceves and B. Smith, "System and Method for Resolving Network Layer Anycast Addresses to Network Layer Unicast Addresses" (May 25, 2010)
US 7,577,754	J.J. Garcia-Luna-Aceves and B. Smith, "System and Method for Controlling Access to Content Carried in A Caching Architecture," (August 18, 2009)
US 7,565,450	J.J. Garcia-Luna-Aceves and B. Smith, "System and Method for Using a Mapping between Client Addresses and Addresses of Caches To Support Content Delivery," (July 21, 2009)
US 7,552,233	J. Raju, J.J. Garcia-Luna-Aceves and B. Smith, "System and method for information object routing in computer networks," (June 23, 2009)
US 7,343,422	J.J. Garcia-Luna-Aceves and B. Smith, "System and Method for Using Uniform Resource Locators to Map Application Layer Content Names to Network Layer Anycast Addresses." (March, 2008)

Education:

September 2003	University of California, Santa Cruz PhD, Computer Science. "Efficient Policy-Based Routing in the Internet." Prof. J.J. Garcia-Luna-Aceves, advisor.
June 1997	University of California, Santa Cruz MS, Computer Science. "Securing Distance Vector Routing Protocols." Prof. J.J. Garcia-Luna-Aceves, advisor.
December 1981	University of California, Santa Cruz 1981 B.A. with Honors, Computer and Information Science

Instrument rated private pilot.