Curriculum Vitae
Dr. Melissa Danforth

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Education

California State University, Bakersfield	Computer Science and Biology	B.S. June 1999
Magna cum laude, Outstanding graduating senior in Computer Science		
University of California, Davis	Computer Science	M.S. March 2002
University of California, Davis	Computer Science	Ph.D. September 2006
Dissertation Title: Models for Threat Assessment in Networks		
Advisor: Dr. Karl Levitt		

Leadership Experience

Vice Chair of Academic Senate of California State University, Bakersfield (CSUB). June 2020 - present.
The CSUB Academic Senate is the shared governance body for campus faculty, and additionally contains representatives from staff, students, and administrators. Service associated with this position includes:

- Academic Senate Executive Committee
- Chair of the Academic Senate Elections Committee
- Accessible Technology Initiative (ATI) Steering Committee
- ATI Working Group
- Instructional Materials ATI Subcommittee
- Faculty Honorary Doctorate Committee
- University Council
- Campus Master Planning Committee
- University Week Planning Committee

Re-elected for second term: Summer 2022 - Spring 2024.

Department Chair for Computer and Electrical Engineering & Computer Science (CEE/CS). CSUB. Chair: July 2014 - December 2020. Interim Chair: December 2013 - June 2014.
Managed a department of over two dozen faculty members and three undergraduate degree programs with six concentration options. Completed maximum term limits for the position. Term extended by one semester in Fall 2020 to cover for the elected new chair, who was on leave.
Key accomplishments:

- Primary proposal author a Master of Science in Computer Science degree program, approved to begin in Fall 2021.
- Grew department from approximately 300 majors by head count to over 600 majors, both from growth in the new engineering programs and growth in the existing computer science program.
- Led the hiring, on-boarding, and mentoring of over a dozen faculty members brought on to meet the growing student demand.

- Instrumental in initial ABET accreditation process for the computer engineering and electrical engineering programs, including being the primary writer for both ABET Self Studies.
- Led department through the quarter-to-semester transition. Aligned curriculum to California transfer requirements, ABET requirements, and professional society recommendations such as the ACM Computer Science 2013 Body of Knowledge.
- Awarded multiple federal grants as PI or co-PI to benefit engineering and computer science students in particular and STEM students in general.

Faculty Co-chair for Goal 3 of CSUB's Strategic Plan. Spring 2019 - present.
The CSUB strategic plan developed the vision and goals for CSUB, and will monitor the achievement of those goals over the first five years of the plan. Each goal has a committee chaired by a faculty member and one or more administrators. Goal 3 is titled "Develop and Sustain High-Quality and Innovative Academic Programs and Support Services" and the administrator co-chairs are Provost Vernon Harper and Interim AVP for Academic Affairs and Dean of Academic Programs Debra Jackson.

Chair of the Academic Affairs Committee (AAC). CSUB Academic Senate. Fall 2018 - Spring 2020.
AAC is the Academic Senate subcommittee responsible for academic policies, procedures, and programs. AAC also serves as the school curriculum committee for inter-school courses and programs.

Chair of the School of Natural Sciences, Mathematics, and Engineering (NSME) Curriculum Committee. CSUB. Fall 2013 - Spring 2015.
Led the curriculum committee through the approval of all quarter-to-semester curriculum within the School of NSME.

Teaching Experience

Professor: CEE/CS Department. CSUB. September 2017 - present.
Promoted to full professor after the 2016/17 review cycle. Branched focus areas to include computer science and engineering education, retention, and graduation initiatives, in addition to cybersecurity curriculum and research.

Associate Professor: CEE/CS Department. CSUB. September 2012 - August 2017.
Awarded tenure and promotion in sixth year review cycle. Instrumental in designing new Information Security curriculum as a concentration in the Computer Science degree. Active in grant writing in both pedagogy and cybersecurity, with multiple grant awards. Instrumental in the department's quarter-to-semester conversion process.

Assistant Professor. CEE/CS Department (formerly Department of Computer Science). CSUB. September 2006 - August 2012.
Taught courses in programming, Unix/Linux, networks, cybersecurity and information assurance, and other department courses. Worked on research in network security using evolutionary computation. Involved undergraduate students in information security research. Created a high school outreach program in cybersecurity.

Lecturer. Department of Computer Science. CSUB. January 2006 - August 2006.
Taught courses in Unix System Administration and Computer Networks for Winter 2006 quarter. Taught the courses Programming Fundamentals and Advanced Computer Networks and Computer Security for Spring 2006.

Teaching Assistant, Data Structures. Department of Computer Science. UC Davis (UCD). September 2000 - June 2001.
Led two to four weekly discussion sections for upper division undergraduate course consisting of approximately 80 students. Designed worksheets for discussion sections. Assisted students with their programming assignments and homework. Graded examinations and final.

Tutor/Professor's Assistant. Department of Computer Science. CSUB. September 1997 - June 1998.
Tutored students in lower division programming fundamentals, object- oriented programming, data structures and introductory UNIX courses. Assisted students with homework and programming assignments. Also a teacher's assistant for a lower division non-major course in basic computer use, including word processing and spreadsheet use.

Research Mentorship and Experience

Research Areas:

- Cybersecurity
- Network Security
- Threat Assessment
- Evolutionary Computation for Cybersecurity
- Vulnerability Analysis
- Secure Program Development
- Computer Science and Engineering Education
- Persistence and Academic Success for STEM Students

Mentor for Undergraduate Research. Ernest Richards. CSUB. Academic Year (AY) 2014 - 2015.
Mentored Ernest on a project involving the testing and debugging of my EVA artificial immune system program to detect malicious web server requests in real-time. Ernest won first place in the Undergraduate division of the 2015 CSUB Student Research Poster Competition for his work on this project.

Mentor for the CSU LSAMP Program. Alfonso Puga. CSUB. AY 2013 - 2014.
Supervised Alfonso's work on a multi-threaded packet capture program that is capable of reassembling fragmented IP packets. The program is intended to work in conjunction with my EVA artificial immune system. Alfonso won multiple student research awards for this project: 1st place in the Computer Sciences and Information Management poster competition at the 2014 Emerging Researchers National Conference and 1st place in the Computer Science and Engineering oral presentation competition at the 2014 CSUB Student Research Competition.

Mentor for the McNair Scholar Program. Robert Morning. CSUB. AY 2011 - 2012.
Supervised Robert's second year McNair project where Robert surveyed current techniques in digital forensics with respect to deleted file recovery. This project was originally planned to be continued in AY 2012 - 2013, but funding for CSUB's McNair Scholar Program was not renewed.

Mentor for the McNair Scholar Program. Robert Morning. CSUB. AY 2010 - 2011.
Mentored Robert for his research topic on hex editors for the McNair Scholar Program. This project focused on making a hex editor, which is commonly used in computer security and digital forensics to examine files to find hidden information.

Faculty Mentor for the CSU Chancellor's Doctoral Incentive Program (CDIP). Jonathan Berling. AY 2010 - 2011.
Developed a plan for research support during Jonathan's years at graduate school and mentoring support for his planned future career as a CSU faculty member. Jonathan was accepted as a CDIP scholar for the 2010 - 2011 school year, but he deferred in order to apply at more high-quality graduate programs.

Mentor for McNair Scholar Program. Jonathan Berling. CSUB. AY 2009 - 2010.
Mentored Jonathan for his research topic, "Simplify", for the McNair program. This project focused on creating a compiled programming language that has several features of an interpreted language.

Mentor for McNair Scholar Program. Jonathan Berling. CSUB. AY 2008 - 2009.
Mentored Jonathan for his research topic, "Classifying Reports using Evolutionary Computation", for the McNair program. This research project used evolutionary computation to classify human-readable reports based on keywords in the reports.

Graduate Student Researcher. Department of Computer Science. UCD. July 2003 - December 2005.
Worked with NetSquared Inc. to develop methods for administrators to do automated threat assessments on networks. Focused primarily on scalable methods to create automatic attack graphs that can be used on large, real world networks. Developed expert system code to generate attack graphs using real exploit descriptions and abstract exploit classes.

Researcher. NetSquared Inc., June 2002 - June 2003.
Investigated machine learning algorithms to evaluate and predict trends in attack patterns from alerts and reports. Worked on code to rank current network and host activity to form priority list. Also developed an artificial immune system using genetic algorithms to detect unknown attacks in web server requests.

Research Assistant. Department of Computer Science. UCD. June 2001 - June 2002.
Project goal was to create a robust, redundant network. Primarily investigated methods to automatically determine and distribute signatures for attacks in the network. Developed code in an expert system to compute decision trees, check configuration, detect unknown attacks and compute responses.

Publications

C. Cruz, A. Medel, A. Bianchi, V. On, M. Danforth. "Impact of Flipped Classroom Model on High-workload and Low-income Students in Upper-division Computer Science". Annual Conference for the American Society for Engineering Education (ASEE), Virtual, June 2021.

M. Danforth, C. Lam, and R. Hughes. "Improving Persistence and Success for At-risk STEM Students Through a Summer Intervention Program at a Hispanic-serving Institution". Annual Conference for ASEE, Virtual, June 2020.

C. Lam, M. Danforth, and R. Hughes. "Lessons from a Lower-division Mathematics Co-teaching Sequence". Annual Conference for ASEE, Virtual, June 2020.

M. Danforth, C. Lam, R. Hughes, and S. Saloman. "Enhancing Research Pipelines for Underserved Students through a Lower-Division Research Experience at a Minority-Serving Institution (Experience)". Annual Conference for ASEE, Tampa, FL, June 2019.

M. Danforth, C. Lam. "Improving Student Success and Retention through a Summer Research Program for First and Second Year Students at a Minority-Serving Institution". Annual Conference for ASEE, Columbus, OH, June 2017.

M. Danforth, C. Lam. "Work in Progress: Increasing Interest in STEM and Improving Retention for At-Risk Students - A Two-Year Study". Annual Conference for ASEE, Columbus, OH, June 2017.

M. Danforth, C. Lam. "Effects of a Four-Week Cyber Security Summer Program on the Attitudes and College Interests of High School Students". Colloquium for Information Systems Security Education (CISSE) Journal, Edition 4, Issue 2, pp. 59-77, February 2017.

M. Danforth, C. Lam, H. Mehrpouyan, R. Hughes. "Impact of a Hands-On, Exploratory Engineering Outreach Program on Knowledge and Attitudes of High School Students". Annual Conference for ASEE. New Orleans, LA, USA, June 2016.

M. Danforth, C. Lam. "Implementation of Multidisciplinary Cyber Security Curriculum at a Medium Sized Campus". Extended abstract and roundtable presentation at the Colloquium for Information Systems Security Education (CISSE 2016), Philadelphia, PA, USA, June 2016.

M. Danforth, C. Lam. "Four Week Summer Program in Cyber Security for High School Students: Practice and Experience Report". Extended abstract and panel discussion at the Workshop on Cyber Security Experimentation and Test (CSET 2014), co-hosted at the Usenix Security Conference, San Diego, CA, USA, August 2014.

C. Lam, M. Danforth, R. Hughes. "A Comprehensive Approach on Delivering Calculus to Engineering Students". Annual Conference for ASEE. Indianapolis, IN, USA, June 2014.

M. Danforth. "WCIS: A Prototype for Detecting Zero-Day Attacks in Web Server Requests." Proceedings of the Usenix Large Installation System Administration Conference (LISA 2011), Boston, MA, USA, December 4-9, 2011.

M. Danforth. "Towards a Classifying Artificial Immune System for Web Server Attacks." Proceedings of the IEEE International Conference on Machine Learning and Applications (ICMLA 2009), Miami, FL, USA, December 13-15, 2009, pp. 523-527.

M. Danforth. "EVA: A Framework for Network Analysis and Risk Assessment." Proceedings of the Usenix Large Installation System Administrators Conference (LISA 2009), Baltimore, MD, USA, November 1-6, 2009, pp. 65-77.

M. Danforth. "Scalable Patch Management using Evolutionary Analysis of Attack Graphs". Proceedings of the IEEE International Conference on Machine Learning and Applications (ICMLA 2008), San Diego, CA, USA, December 11-13, 2008, pp. 300-307.

M. Danforth. "Analysis of Attack Graphs using Evolutionary Computation". Military and Security Applications of Evolutionary Computation workshop at Genetic and Evolutionary Computation Conference (GECCO 2006), Seattle, WA, USA, July 2006.

M. Danforth and K. Levitt. "Immune System Model for Detecting Web Server Attacks". Proceedings of the International Conference on Machine Learning and Applications (ICMLA 2003), M. Arif Wani, K. Cios and K. Hafeez, eds., Los Angeles, CA, USA, June 23-24, 2003, pp. 161-167.

M. Danforth. "Immune System Model for Detecting Web Server Attacks". Proceedings of the 2002 UC Davis Student Workshop on Computing, Technical Report CSE-2002-28.

J. E. Just, J. C. Reynolds, L. A. Clough, M. Danforth, K. N. Levitt, R. Maglich, and J. Rowe. "Learning Unknown Attacks - A Start." Proceeding of the 5th International Symposium (RAID 2002), Recent Advances in Intrusion Detection, A. Wespi, G. Vigna, and L. Deri, eds., Zurich, Switzerland, October 16-18, 2002, pp. 158-176.

Poster Sessions

M. Danforth, C. Lam, and R. Hughes. "Technology Enhanced Pre-Calculus Classrooms (Work in Progress)". Poster session and extended abstract. Annual Conference for ASEE, Salt Lake City, UT, June 2018. Woody Everett Best Poster Award in the Computers in Education Division.

C. Lam, M. Danforth, R. Hughes. "Short-term Exploratory Summer Program for At-Risk First Year Students (work in progress)". Presented at Annual Conference for ASEE. New Orleans, LA, USA, June 2016.

M. Danforth, C. Lam. "One-week Summer Program for At-Risk Students". Presented at the AAAS/NSF Envisioning the Future of Undergraduate STEM Education Symposium, Washington DC, USA, April 2016.

M. Danforth, C. Lam. "Outreach Program for High School Students in Cyber Security (In Progress)." Presented at the Pacific Southwest Regional Conference of the American Society for Engineering Education (ASEE PSW 2015). San Diego, CA, USA. April 2015.

H. Mehrpouyan, C. Lam, M. Danforth, R. Hughes. "A Summer Engineering Outreach Program for High School Students". Presented at Annual Conference for the American Society for Engineering Education (ASEE 2014). Indianapolis, IN, USA. June 2014.

M. Danforth and S. Garcia. "Experiences Teaching System Administration via Online Modules." Presented at Summit for Educators in System Administration (SESA 2013), co-hosted at USENIX LISA. Washington DC, USA. November 2013.

Student Research

E. Richards (Faculty advisor: M. Danforth). "An Application of a Classifying Artificial Immune System for Web Server Defense." Poster presentation at the 2015 CSUB Student Research Poster Competition. Mr. Richards won first place in the Undergraduate division.

E. Richards (Faculty advisor: M. Danforth). "An Application of a Classifying Artificial Immune System for Web Server Attacks." Oral presentation at the 2015 CSUB Student Research Competition.

A. Puga (Faculty advisor: M. Danforth). "Web Server Automated Immune System." Poster presentation at the 2014 CSUB Student Research Poster Competition.

A. Puga (Faculty advisor: M. Danforth). "Web Server Automated Immune System." Poster presentation at the 2014 NSF Emerging Researcher National Conference (ERN), Washington DC, USA, 2014. Mr. Puga won first place in the Computer Sciences and Information Management session.

A. Puga (Faculty advisor: M. Danforth). "Web Server Automated Immune System." Oral presentation at the 2014 CSUB Student Research Competition. Mr. Puga won first place in the Computer Science and Engineering division, and went on to give this presentation at the CSU-wide Student Research Competition in 2014.

Professional Activities

Reviewer for the Annual Conference for ASEE (multiple years).

Editorial board member for the USENIX Journal of Education in System Administration (JESA) Fall 2015 - Fall 2016.

Program Committee member for the USENIX Summit for Educators in System Administration (SESA). 2016.

Reviewer for the ACM Computing Surveys and Transactions on Information and Systems Security (TISSEC) journals.

Reviewer for the IEEE International Conference on Connected Vehicles and Expo (ICCVE) 2013.

Scientific Program Committee member for the 4th International Conference on Information Security and Cryptography (ISC Turkey 2010), Ankara, Turkey, May 6-8, 2010.

Organizer for the "Academic Roundtable" birds-of-a-feather session at Usenix LISA 2010 conference, San Jose, CA, USA, November 11, 2010.

Grants Awarded

NSF Improving Undergraduate STEM Education (IUSE) HSI Program.
Grant Period: September 2021 - August 2023.
Title – HSI Pilot Project: The MAESTRO Program - Minority Advancement in Engineering, Science, and Technology by Refactoring the Online Program.
Award Number – 2122442.
Funding – Received 2 year funding of $199,993.
Grant Roll – Key personnel.
Principal Investigator – Alberto Cruz.

NSF Improving Undergraduate STEM Education (IUSE) Program.
Grant Period: December 2014 - December 2017 (NCE to December 2018).
Title – STEM Retention and Graduation: An Integrated Approach.
Award Number – 1430398.
Funding – Received 3 year funding of $1,002,206.
Grant Roll – Co-PI. Wrote grant with Charles Lam and Kamel Haddad.
Principal Investigator – Charles Lam.

U.S. Department of Education Title V HSI grant.
Grant Period: October 2010 - September 2015 (NCE to September 2016).
Title – Developing a Highly Structured Engineering Pathway for Hispanics Through an Intersegmental and Collaborative Approach.
Award Number – P031S100081.
Funding – Received 5 year funding of $3,836,701.
Grant Roll – Project Director from January 2015 - September 2016. Interim Project Director from February 2014 - January 2015.

U.S. Department of Education Minority Science and Engineering Improvement Program (MSEIP).
Grant Period: October 2014 - September 2017 (NCE to September 2018).
Title – Developing Sustainable Interdisciplinary STEM Programs for First and Second Year Underserved Students in the Southern San Joaquin Valley.
Award Number – P120A140051.
Funding – Received 3 year funding of $734,735.
Grant Roll – Co-PD/Summer Program Director. Wrote grant with Charles Lam.
Project Director (PI) – Charles Lam.

NSF Federal Cyber Service: Scholarship for Service (SFS) program. DUE – SFS-Institutional Development.
Grant Period: October 2012 – September 2015.
Title – Models for Information Assurance Education and Outreach.
Award Number – 1241636.
Funding – Requested and received 3 year, $267,351 funding.
Grant Roll – Principal Investigator (PI). Wrote grant with Charles Lam and Mark Martinez.
Co-PI(s) – Charles Lam, Mathematics.
Key Personnel – Mark Martinez, Political Science.

U.S. Department of Education Minority Science and Engineering Improvement Program (MSEIP).
Grant Period: October 2011 – September 2014.
Title – Filling Essential Gaps in the High Needs San Joaquin Valley STEM Degree Pathways.
Award Number – P120A110050.
Funding – Requested and received 3 year, $725,641 funding.
Grant Roll – Co-PD/Activities Director. Wrote grant with Charles Lam and Linwei Niu.
Project Director (PI) – Charles Lam, Mathematics.

CSUB Faculty TLC Professional Development Grant, Summer/Fall 2009.
Received a grant to support travel to LISA 2009 to present the EVA attack graph tool.

CSUB Research Council of the University (RCU) Grant, 2006 - 2007.
Received funding for research on network security and evolutionary computation.

Grants in Submission

NSA GenCyber Summer Camp Program. “CSUB GenCyber Squad”. Budget request: $67k for two years.
Role: Program Director. Writing efforts: Minimal. Kanwal Gagneja, the co-PI, was primary writer.

NSF ADVANCE Program. "California State University, Bakersfield ADVANCE: Organizational Change for Gender Equity in STEM Academic Professions Catalyst Track". Budget request: $300k for two years. Role: Co-PI. Writing effort: Minimal. Andrea Medina was primary writer.

California Department of Education EWIG call. "Computer Science Professional Learning and Assistance Network for California (CS-PLANforCA)". Budget request: Subcontract for $135k for two calendar years (three fiscal years) under UC Davis proposal. Role: Part of CSUB subcontract team with Brittney Beck and Jesus S. Esquibel in Teacher Education.

NSF S-STEM Program. "Providing Aid for STEM Success". Budget request: $1.5 million for six years. Role: PI. Writing effort: Primary writer.

Other Grant Activity

U.S. Department of Education Teacher Quality Partnership (TQP) Program.
Grant Period: October 2018 – September 2023.
Title – Citizen Scientist Residency Pathway
Award Number – U336S180012.
Funding – $4,923,517.
Grant Roll – Computer Science expert (20% time effort).
Project Director (PI) – Brittney Beck.

U.S. Department of Education Title V Hispanic Serving Institution (HSI) grant.
Grant Period: October 2015 - September 2020.
Title – Increasing the Productivity of the Engineering Degree Pipeline in the High Needs Southern San Joaquin Valley: A Sound Cooperative Arrangement Project with Bakersfield College.
Award Number – P031S150037.
Funding – $3,249,688.
Grant Roll – Engineering Coordinator (25% time effort).
Project Director (PI) – Jorge Talamantes and Luis Cabrales.

Service

Chair of the Pandemic Research Group Steering Committee. CSUB. Spring 2021 - present.
The Pandemic Research Group looks into the effects of COVID-19 on higher education and the community. It is an interdisciplinary effort with members from all schools at CSUB. Selected as chair of the steering committee by steering committee members.

Chair of the Instructional Materials subcommittee of CSUB's Accessible Technology Initiative. Fall 2020 - present.
The Instructional Materials ATI subcommittee (ATI IM) is a broad group responsible for development of policies surrounding the accessibility of instructional materials, as well as monitoring the implementation and effectiveness of those policies. ATI IM is also responsible for monitoring the infrastructure and support available to assist faculty and staff with the development of accessible materials for CSUB's courses and related student services. Service on the committee is expected for the Vice Chair of CSUB's Academic Senate. Selected as chair of the ATI Instructional Materials subcommittee by members of the committee in Fall 2020.

Distributed Learning Committee (DLC). CSUB. Fall 2020 - present.
DLC is responsible for monitoring and implementing CSUB's distributed learning policy, such as determining the instructor certification methods.

Ethnic Studies Unit Implementation Task Force. CSUB. Fall 2020.
The ethnic studies unit implementation task force was responsible for reviewing the CSU Chancellor's Office draft Title V modifications, California AB 1460, the recommendations of the Academic Senate of the CSU (ASCSU), and the recommendations of the CSU Council on Ethnic Studies to develop recommendations for the implementation of the AB 1460 ethnic studies requirement at CSUB.

Participant in Maddy Institute CETF Roundtable. Fall 2020.
The California Emerging Technology Fund (CETF) held a roundtable discussion with representatives from higher education and telecommunication companies about closing the digital divide in the San Joaquin Valley. The purpose of the roundtable discussion was to inform California state policy and funding requests for 2021.

Faculty Hiring Diversity Initiative. CSUB. Fall 2019 - present.
This initiative is a team of faculty members and administrators who have attended training, such as the Excelencia "Creating a Hispanic Serving Identity Through Faculty Hiring Institute" and the UC/CSU "Moving Beyond Bias Training", and are revising CSUB's faculty hiring materials and processes to incorporate best practices for diverse hiring.

Space Management Committee. CSUB. Spring 2019 - present.
This committee developed out of the Classroom Task Force to focus on strategic utilization, renovation, and improvement of CSUB's instructional space.

California Cybersecurity Education and Workforce Development Workgroup. Statewide. Spring 2019 - present.
Participated in meetings for the California statewide cybersecurity education and workforce development workgroup, which includes the California Cybersecurity Career Education Pipeline and Pathway Project (C3EP3). Assisted with the development of curriculum recommendations for two-year and four-year cybersecurity degree programs, and provided some course exemplars for that project.

Academic Administrator Review Committee. CSUB. Multiple terms:

- Dean of Extended Education and Global Outreach. 2020/21 AY.
- AVP for Academic Affairs and Dean of Academic Programs. 2018/19 AY.

At-Large Senator of the CSUB Academic Senate. Fall 2018 - Spring 2020.
Elected by CSUB faculty members for a two-year term.

Bring Your Own Device Task Force. Fall 2019 - Spring 2020.
This task force looked at all the potential issues and potential benefits of CSUB adopting a mandatory device policy for students. It went idle with the COVID-19 pandemic, as ITS focused on meeting the needs of students without appropriate access to technology at home.

Classroom Task Force. CSUB. 2017/18 AY.
This task force took a close look at CSUB's instructional space. It investigated disconnects and errors between different space databases, reviewed current space utilization, and developed recommendations for keeping spaces updated and technologically current going forward.

Participant in the Ethics Across the Curriculum (EAC) initiative. CSUB. Fall 2013 - present.
Invited to participate in a multidisciplinary initiative to incorporate ethics in CSUB's curriculum. Incorporated the techniques into the discussions of ethical data handling for CMPS 445 (Data Mining) and the ethics of cybersecurity research for CMPS 451/4510 (Vulnerability Analysis) and CMPS 476/4620 (Adv. Networking and Computer Security).

Academic Affairs Committee (AAC). CSUB Academic Senate. Member: Fall 2016 - Spring 2020. Chair: Fall 2018 - Spring 2020.
This is a standing committee of the Academic Senate tasked with providing recommendations on academic policies, procedures, programs, and curriculum. AAC also serves as the school curriculum committee for courses and programs having inter-school or all-university impact.

Department Chair Leadership Council (DCLC) representative for CSUB's Information Technology Advisory Committee (ITAC). Fall 2015 - Fall 2020.
This advisory committee reviews recommendations from the faculty / staff Information Technology Committee (ITC) with regards to ITS services, staffing, training, and planning and prioritization.

Part of the project team for Advanced Email Protection (AEP) and Endpoint Detection and Response (EDR). Fall 2016 - Spring 2019.
This team is part of the ITS process to select vendors for AEP and EDR products on campus.

Member of Board of Directors for Empower with Code. Summer 2016 - Summer 2018.
Empower with Code is a Bakersfield organization founded by a CSUB MBA student. The goal of Empower with Code is to encourage girls to pursue careers in computer science through outreach and education program for K-12 students.

Organizer of Eighth Annual Department "Capture the Flag" Contest – "Student Edition". CSUB. June 2016.
Part of the classroom activity for CMPS 476 was to develop a Capture the Flag contest.

Secretary for the CSU CS/IS/SE Discipline Council. Spring 2016 - Fall 2020.
The CS/IS/SE Discipline Council is the CSU-wide discipline council for Computer Science, Information Systems, and Software Engineering chairs. It meets on an annual basis at one of the CSU campuses. CSUB was the host campus in April 2019. During COVID-19, the meetings have occurred over Zoom.

CEE/CS Representative on NSME Honors and Awards Committee. CSUB. Fall 2013 - Spring 2018.
This committee selects the outstanding awards for NSME students and also awards scholarships that are specifically for NSME students.

Guest appearance on Kern County Superintendent's "Do The Math" show. Fall 2015.
One of the participants in the Summer 2015 NSF SFS Dissemination workshop was Michael Cushine, who is the host of this math tutoring show for the Kern County Superintendent's Office. He invited me to give a brief guest talk on the show about cybersecurity and the mathematics of cybersecurity.

REVS-UP/NSF SFS Summer Outreach for High School Students. CSUB.
Conducted outreach program in cybersecurity for high school students (and incoming CSUB freshmen in Summer 2015). The Summer 2013 - 2015 sections were partially paid for by my NSF SFS grant and run through the REVS-UP program to simplify application process for students. Kept in contact with approximately a half dozen students who became Computer Science majors at CSUB. Details on the modules follow:

- Summer 2018 – Continued the GPU-cracking hashcat modules from prior summers. Worked with CSUB student mentors Aurora Hernandez and Jesse Fonseca. Aurora helped modify the digital forensics and network analysis modules to use Kali Linux. Jesse helped add modules on Arduino programming.
- Summer 2015 – Developed modules on digital forensics by distilling important concepts from the CMPS 340 course. Continued GPU-cracking module. Student assistants, Mark Stevens and Polo Melendez, helped create activity worksheets and webpage references for the students.
- Summer 2014 – Developed module on using network analysis tools such as Wireshark (graphical) and tcpdump (command-line). Augmented GPU-cracking modules and Alfonso Puga augmented social engineering modules.
- Summer 2013 – Initial year. Developed module on using GPUs to crack passwords (continued for all years). Student assistant, Alfonso Puga, developed modules on social engineering (also used in Summer 2014).

CSUB First Year Experience (FYE) RUSH-A Advisory Committee. CSUB. Fall 2011 - Spring 2016.
Invited to be the NSME representative on the FYE Advisory Committee in Fall 2011. Re-selected to be on the committee in Spring 2013. This committee oversaw the curriculum for the required CSUB 101 course for all incoming freshman. The committee also oversaw the curriculum for the optional courses of CSUB 103 and CSUB 105. Committee was replaced by GECCo and the FIG for the First Year Seminar with the Q2S conversion.

Faculty Advisory Committee for interdisciplinary major in Global Intelligence and National Security (GINS). CSUB. Winter 2010 - Spring 2016.
Instrumental in forming collaborations between GINS and NSME, such as the Information Security concentration within the Computer Science degree. Also assisted other members of the committee with writing grants to secure new funding for the GINS program. The GINS program was folded into a concentration in Political Science with the Q2S conversion and the committee was discontinued. CMPS - Information Security students also retain a GINS cognate under semesters.

School of Natural Sciences, Mathematics, and Engineering (NSME) Curriculum and Area B/Theme 1 Committee. CSUB. Fall 2009 - Spring 2015. Chair of Committee: Fall 2013 - Spring 2015.
The committee approves curriculum changes within NSME and, under the quarter-system, oversaw the Area B and Theme 1 general education courses offered within NSME. During Summer and Fall 2014, the committee oversaw the quarter-to-semester conversion process for NSME.

Committee on Professional Responsibility (CPR). CSUB. June 2013 - May 2015.
The CPR handles allegations of unprofessional conduct that cannot be handled within the basic academic unit.

Faculty Juror for the following Student Research Competitions:

- CSUB Student Research Poster Competition. Spring 2016. Engineering and Computer Science division.
- CSUB Student Research Competition. March 2011. Physical and Mathematical Sciences division.

Moderator for the following Student Research Competitions:

- CSU-Wide Student Research Competition, Spring 2016. Engineering and Computer Science division.
- CSUB Student Research Competition, Winter 2016. Physical and Mathematical Sciences division.
- CSUB Student Research Competition, Winter 2015. Engineering and Computer Science division.

Search Committee Service. CSUB. Served on the following search committees:

- Dean of the School of NSME. 2021/22 AY. Chair of committee.
- Dean of the School of NSME. 2020/21 AY.
- CEE/CS Dept. Electrical and Computer Engineering and Computer Science faculty positions. Multiple years. Chair of committee.
- AVP of Enrollment Management. Spring 2019.
- Faculty representative to advisory committee for the CSUB President Search. 2017/18 AY.
- Chief Information Security Officer. 2017/18 AY.
- Dean of the School of NSME. 2016/17 AY.
- Associate Vice President of the ITS Department. Winter 2015.
- Associate Dean of the School of NSME. Fall 2014.
- Fab Lab Coordinator for the School of NSME. Summer and Fall 2014.
- CEE/CS Dept. Administrative Support Coordinator. Winter and Spring 2014.
- Director of Infrastructure and User Support for the ITS Department. Fall 2013.

Organizer of Sixth Annual Department "Capture the Flag" Contest – "Student Edition". CSUB. June 2014.
Part of the classroom activity for CMPS 476 was to develop a Capture the Flag contest.

NSME Assessment Fellow. CSUB. February 2013 - August 2014.
Responsible for maintaining CEE/CS assessment areas on TaskStream for the degree programs (Computer Science, Computer Engineering, Electrical Engineering) and the department general education courses, and for coordinating the TaskStream assessment areas with department's ABET assessment plan.

Organizer of the Fifth Annual Department "Capture the Flag" Contest – CSUB. June 2013.
Created a series of virtual machines containing the flags for the contest. Additional content was provided by Donna Meyers. Supervised the running of the contest.

NSME Retention, Tenure, and Promotion (RTP) Criteria Committee. CSUB. September 2012 - March 2013.
CEE/CS representative on the committee to develop school-wide RTP criteria for NSME. The criteria were delivered to the faculty of NSME at the beginning of April 2013 for a vote on adoption.

Advisor for Computer Science and Engineering Club. CSUB. Fall 2008 - Spring 2014.
Served as advisor to the Computer Science and Engineering Club (formerly the Media and Technology Club) for students in the discipline.

Computer and Information Literacy Committee. CSUB. Fall 2006 - Spring 2010.
Served on the committee that oversaw the implementation and assessment of the computer competency and information literacy graduation requirements. Re-elected to the committee in Fall 2008. This committee went into hiatus during the 2008-10 service cycle and did not resume operations.

Organizer of Fourth Annual Department "Capture the Flag" Contest – "Student Edition". CSUB. June 2012.
Students from my Spring 2012 CMPS 476 Advanced Networking and Security class created their own capture the flag contest during the course of the term. All students in the department were invited to participate and try to capture the flags before the department end-of-the-year party.

Organizer of Third Annual Department "Capture the Flag" Contest. CSUB. June 2011.
Created virtual machines containing forensics "flags" for the students to capture for the contest. Organized the time, location and departmental flyers (with the help of Penny Lampkins for the flyers) for the contest. The contest was attended by a half dozen students.

Academic Technology Task Force. CSUB. October 2007.
Selected as the Computer Science department representative on Clarke Sanford's academic technology task force.

Women in Engineering Link. UC Davis. Spring Quarter 2001.
Mentored a female computer science undergraduate student as part of the Women in Engineering program. The goal of the program is to encourage female undergraduate students to continue on to graduate school.

Memberships

Association for Computing Machinery (ACM) since 2006.
ACM Special Interest Group for Genetic and Evolutionary Computation (SIGEVO).
ACM Special Interest Group on Security, Audit and Control (SIGSAC).

USENIX: The Advanced Computing Systems Association since 2010.
USENIX LISA Special Interest Group (SIG) for Sysadmins (formerly SAGE) until USENIX discontinued this SIG in 2016.

American Society for Engineering Education (ASEE) since 2012.
ASEE Women in Engineering Division (WIED).
ASEE Engineering Ethics Division.
ASEE First-Year Programs Division.

Association for Practical and Professional Ethics (APPE) since 2014.

Information Systems Security Association (ISSA) since 2020.
Kern ISSA local chapter.

Honors

Faculty Leadership and Service Award. CSUB. 2019/20 AY.
Co-awarded with Jorge Talamantes for department leadership through the ABET accreditation process.

Gold Award for Excellence in Sponsored Programs. CSUB, GRaSP. FY 2014-15.

Selected as a fellow for the Faculty Fellows Program. CSUB. 2015/16 AY.
The Faculty Fellows program is a leadership development program for faculty at all levels.

Gold Award for Excellence in Sponsored Programs. CSUB, GRaSP. FY 2013-14.

Selected as a fellow for the Mid-Career Fellows program. CSUB. Winter 2013.
The Mid-Career Fellows program matches promising associate professors (the fellows) with mentors in academic administration and provides professional development to the fellows.

Graduate Assistance in Areas of National Need (GAANN) fellow. UCD. Awarded 2001.

Outstanding graduating senior for Computer Science. CSUB. 1999.

Inducted into the CSUB chapter of the national honor society Alpha Chi. 1998.

CSUB School of Arts and Sciences Merit Scholar. Awarded 1994.

Selected Courses Developed

Digital Forensics (CMPS 3650). Spring 2022.
Redesigned elective course for the semester system, based partially on materials from Donna Meyers and partially on new materials. Course looks at digital forensics from the lenses of criminal, civil, and corporate / private investigations with a strong focus on legal and ethical foundations from an academic perspective. Course pairs lecture discussions on digital forensics techniques with hands-on activities using Linux open-source tools.

Vulnerability Analysis (CMPS 451/4510). Spring 2015, Fall 2016, Fall 2018, Fall 2020.
Developed elective course on source code auditing and binary analysis (reverse engineering) using C/C++ and Linux binaries as primary examples. Course uses modern examples of "small" source code issues that led to major exploitable vulnerabilities, such as Android Stagefright, Spectre, and other breaking issues in each term. Incorporates ethics components with respects to vulnerability disclosure. Requires hands-on code auditing project to reinforce theoretical materials.

Network and Computer Security (CMPS 476/4620). Every other Spring from Spring 2006 to Spring 2016, Fall 2021.
Developed elective course on foundational computer and network security concepts: ethics and legal issues, cryptography, authentication, access control (discretionary and mandatory), secure OS design, malware concepts, network-based attacks, intrusion detection/prevention, system evaluation, and social engineering / advanced persistent threats (ADTs). Course requires survey project on student-selected cybersecurity topic.

Computational Thinking (SCI 5200) for the California Introductory Computer Science Supplementary Authorization (Introductory CSSA). Summer 2021, Spring 2022.
Developed foundational course in the four-course Introductory CSSA program for K-9 teachers. Course introduces the teachers to fundamental computing concepts including decomposition, data representation, generalization/abstraction, and algorithms. The teachers apply concepts to develop their own

skills and to develop lesson plans at their target grade level, following the California computer science K-9 curriculum guidelines. Course also introduces block programming and digital citizen concepts, which are further refined in the three other Introductory CSSA courses developed by other faculty members.

Other Courses Taught

Senior Project I and II (CMPS 4910, 4928, 490A, 490B, 490)

Operating Systems (CMPS 3600)

Linux Environment and Administration (CMPS 2650)

Computer Networks (CMPS 376)

Data Mining and Visualization (CMPS 445)

Artificial Intelligence (CMPS 356)

Programming Languages (CMPS 350)

Digital Forensics (CMPS 340)

Computer Architecture (CMPS 321)

Data Structures and Algorithms (CMPS 223)

Object-Oriented Programming (CMPS 222)

Programming Fundamentals (CMPS 221)

Unix Programming Environment (CMPS 215)

Unix System Administration (CMPS 216)

Introduction to Unix (CMPS 150)

Introduction to Engineering (ECE 160)

Introduction to CSUB (CSUB 101)