Brent Eskridge | PhD

Cybersecurity · Computer Programming · Machine Learning · Artificial Intelligence

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Summary

I create unique solutions to interesting and difficult technical challenges, but create even better solutions when collaborating in a diverse team. I have extensive experience with collaborating in interdisciplinary research projects, implementing solutions in software, communicating technical concepts to wide audiences, and mentoring others.

Work Experience Highlights

Professor & Dept. Chair, Dept. of CSNE - Southern Nazarene University 2004 - Present

· Proposed, secured, and managed three interdisciplinary, multi-institution research projects that applied collective movement principles found in nature to teams of autonomous agents. Projects had funding in excess of $380,000 and consisted of two National Science Foundation (NSF) research grants and a sabbatical at the Max Planck Department of Collective Behaviour in Konstanz, Germany.

· Led six different research projects with responsibilities including: defining the research questions, roadmap, and milestones; designing and performing experiments; and creating the data analysis process. As a result of these projects, 10 research assistants were mentored, 17 peer-reviewed research papers were published, and over 25 conference papers were presented across North America and Europe.

· Designed, implemented, and maintained software for eight different research projects using concepts that include neural networks, reinforcement learning, fuzzy logic, autonomous agents, and multi-agent systems. Software used technologies such as Python, Java, R, Bash scripts, Ant, YAML, and GitHub.

· Mentored, advised, and taught students in the Cybersecurity, Computer Science, Software Development, and Network Engineering programs, with over 90% of graduates successfully employed in their field.

· Designed, taught, and assessed over 20 different Computer Science courses, consisting of over 150 different course sections. Courses were taught using face-to-face, remote, and hybrid modalities and covered topics including: software development, operating system concepts, computer architecture, Linux, algorithms, data structures, database systems, and ethics in technology.

· Performed static and dynamic code analysis on student projects to assist in debugging and ensure requirements compliance. Languages included Python, Java, C/C++, MIPS assembly, Bash, and SQL.

· Led the Computer Science and Network Engineering department and its five different degree programs for eight years with as many as 10 adjunct and full-time faculty and 50 enrolled majors in a semester. Responsible for recruiting adjunct faculty, managing the departmental budget, scheduling all courses, coordinating with other departments and administration, and leading the quadrennial assessment for all departmental programs and courses.

· Elected three times to the Faculty Senate by peer faculty. Served twice on the university committee responsible for faculty rank advancement (i.e., promotion), once as co-chair with the provost. Served in various other capacities including: NASA Space Grant Committee (2009–Present), Technology Advisory Committee (2013–2019), and Faculty Representative to the Board of Trustees (2017–2018).

Software Consultant & Co-owner - els Solutions, LLC 2000 - 2003

· Co-architected an object-oriented Java web application running on Linux which interfaced with a multi-valued (non-SQL) database residing on a Unix mainframe.

· Designed, implemented and tested the application's storage subsystem using Java, JDBC, and MySQL.

· Collaborated with co-owners in making day-to-day business decisions, including project proposal and planning, budgeting, and customer negotiation. Led company networking and marketing efforts.

Software Engineer II - Raytheon Systems Company 1997 - 2000

· Designed and implemented a Solaris (Unix) network server, with a custom message format and logging subsystem, in C++ that communicated with programmable logic controller (PLC) machinery.

· Initiated, designed, and implemented a GUI tool in Perl/Tk that simplified QA testing of software-based device simulators. Due to its success, a second version was developed for use in subsequent projects.

· Represented the software team for six months in initial offsite integration efforts with a subcontractor. This included troubleshooting network communications at the packet level, determining specification compliance, and serving as the software point-of-contact for the subcontractor.

· Earned and maintained a security clearance *(currently inactive)*.

Other Relevant Experience

· Operate a home cybersecurity learning lab using tools including: Kali Linux, pfSense, FLARE VM, REMnux, Trace Labs OSINT, ThreatPursuit VM, Linux Mint, CentOS, and VirtualBox.

· Implemented and ran machine learning experiments on the supercomputing cluster at the University of Oklahoma, totaling over 415,000 core hours (47 core years) of processing time.

· Developed tools using Python, Bash, Perl, R, and regular expressions to automatically parse, process, and analyze large experimental data sets, including automatic generation of statistics and visualizations.

Education

Ph.D. Computer Science - University of Oklahoma 2009

M.S. Computer Science - University of Oklahoma 2004

B.S. Physics and Mathematics - Southern Nazarene University 1995

Relevant Certifications & Accomplishments

· eLearnSecurity Junior Penetration Tester (eJPT)
· CompTia Security+
· TryHackMe: Top 0.5% *(as of 2021.06.24)*
· RangeForce: SOC Analyst 1 Elite, SOC Analyst 2
· AttackIQ: Foundations of Operationalizing MITRE ATT&CK

Relevant Training

· INE: Reverse Engineering Professional *(July 2021)*, Malware Analysis Professional *(July 2021)*, Penetration Testing Student *(May 2021)*

· Black Hills Information Security: Active Defense & Cyber Deception *(June 2021)*, Getting Started in Security with BHIS and MITRE ATT&CK *(May 2021)*

· Active Countermeasures: Cyber Threat Hunting *(May 2021)*

Volunteer Experience

· Served as a peer reviewer for 3 research journals and 5 research conferences and as a grant proposal reviewer for the National Science Foundation.

· Mentored Bethany High School and Elementary robotics teams from 2015 to 2019.

· Led ethics training for SNU NASA Space Grant Summer Research students in 2013–2018 and 2021.

· Hosted a regional site for the International Collegiate Programming Contest (ICPC) in collaboration with the University of Oklahoma in 2016, 2018, and 2019.

Relevant links

· NSF Grant - RI: SMALL: RUI: Fission-Fusion Multi-Robot Systems 【Abstract】 【GitHub】

· NSF Grant - CDI TYPE-I: RUI: Emergent Hierarchies of Leaders in Multi-Robot Systems 【Abstract】 【GitHub】

· Publication highlights: 【PLoS One】 【Robotics & Autonomous Systems】 【Autonomous Agents】

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