

MARQUISE PULLEN

Adjunct Professor of Computer Science · Doctoral Candidate · Senior Software Engineer

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ACADEMIC PROFILE

Engineer-educator with 9+ years teaching computer science at the university level and 16+ years of systems engineering practice. Research in electro-optical switchable filters and bio-inspired vision for GPS-denied navigation, funded by \$230K in two In-house Laboratory Independent Research awards. Teaching centers on bringing production practice — web, cloud, DevOps — into the undergraduate classroom.

RESEARCH INTERESTS

- Electro-optical switchable filters and tunable photonics
- STEM education research and teaching innovation
- Bio-inspired vision sensing for navigation and detection
- Cloud computing, DevOps, and software engineering practice
- Vision-based navigation in GPS-denied environments
- Workforce development and cybersecurity education

EDUCATION

Ph.D. Electrical Engineering — Computer Vision & Machine Learning <i>Drexel University</i>	In progress ~2026–2027
M.S. Electrical Engineering — Controls & Digital Signal Processing <i>Drexel University</i>	2016
M.S. Mechanical Engineering — Dynamics & Robust Controls <i>Drexel University</i>	2009
B.S. Electrical Engineering — Electronics & Controls <i>Drexel University</i>	2006

ACADEMIC APPOINTMENTS

Adjunct Professor, Computer Science <i>Rowan University · Glassboro, NJ</i>	Sep 2018 – Present
• Designed the Web Programming curriculum from scratch; teach production-grade web development (HTML, CSS, JavaScript/TypeScript, React, Node.js, REST) through a multi-sprint MERN-stack capstone. • Instruct ~46 students per year across multiple sections with an 82% pass rate. • Built a teaching demonstration project using agentic AI (Ollama, ChromaDB, FastAPI, RAG) to introduce students to practical AI engineering.	

Adjunct Professor, Computer Science

Aug 2017 – Present

Rowan College at Burlington County · Mount Laurel, NJ

- Teach Introduction to Computer Science I & II in C++ — fundamentals, data structures, and object-oriented programming.
- Designed and launched the college's first Cloud Computing and DevOps course sequence, building curriculum, lab infrastructure, and assessments from the ground up.
- Structured the curriculum around real production tooling: GitLab CI/CD, Terraform, Ansible, GCP, microservices, and observability (Prometheus, Grafana, Loki).

Doctoral Teaching & Research Fellow

Jan 2017 – Jun 2023

Drexel University · Philadelphia, PA

- Instructor/TA across 20+ undergraduate course offerings; supported the first fully-remote engineering course pre-COVID.
- Helped modernize the ECE senior design program (30+ teams/year), critiquing technical presentations, proposals, and demonstrations to improve project readiness.
- Conducted graduate research in the Nanophotonics+ Lab on electro-optical switchable filters, publishing two peer-reviewed papers.

ExPERTS Teaching Fellow

2017 – 2018

Experiential Practices in Education Research and Teaching in STEM — Drexel CASTLE

- STEM education fellowship placing graduate engineers in the high school classroom; taught and co-developed STEM lessons alongside the classroom teacher.
- Run under Drexel's CASTLE, directed by Dr. Adam K. Fontecchio — also my doctoral advisor and co-author on both publications.

COURSES TAUGHT

Web Programming	Rowan University · Curriculum designed from scratch
Computer Science & Programming	Rowan University · CS 04103
Cloud Computing & DevOps	Rowan College at Burlington County · First offering at the college
Introduction to Computer Science I (C++)	Rowan College at Burlington County
Introduction to Computer Science II (C++)	Rowan College at Burlington County
Senior Design I	Drexel University
Senior Design II	Drexel University
Senior Design III	Drexel University
Renewable Energy	Drexel University · First fully-remote engineering course, pre-COVID

RESEARCH EXPERIENCE

Graduate Researcher, Nanophotonics+ Lab

2017 – Present

Drexel University

- Electro-optical switchable filters (H-PDLC) for spectral line emission detection and bio-inspired visual sensing; two peer-reviewed publications.
- Doctoral advisor: Dr. Adam K. Fontecchio.

Research Engineer — Positioning, Navigation & Timing

2009 – 2022

U.S. Army DEVCOM C5ISR Center (formerly CERDEC)

- Vision-navigation techniques for GPS-denied environments; led multi-year defense research projects and oversaw test-platform design for PNT field testing.
- Real-time geospatial overlays fusing INS/IMU and Doppler streams at 60 Hz to surface sensor outages during live Blackhawk flight tests.

GRANTS & FUNDED RESEARCH

In-house Laboratory Independent Research (ILIR) — \$100K

2020

U.S. Army · Spectral Signature Beacon Navigation

- Principal investigator / project leader.

In-house Laboratory Independent Research (ILIR) — \$130K

2018

U.S. Army · H-PDLC Bio-inspired Vision Navigation

- Principal investigator / project leader.

PUBLICATIONS

- Pelleg, B., Steinhäuser, C., Pullen, M., Linden, J., & Fontecchio, A. "Electrically switchable electro-optic filters for spectral line emission detection." *Applied Optics* 60, 1059–1067 (2021). [\[link\]](#)
- Pullen, M. N., & Fontecchio, A. K. "Bio-inspired visual sensing enhances imaging techniques using integrated electro-optical switchable filters." *SPIE Vol. 10895* (2019). [\[link\]](#)

PRESENTATIONS

Bio-inspired visual sensing enhances imaging techniques using integrated electro-optical switchable filters

Feb 2019

SPIE Photonics West · First author

Army RDEC research review — H-PDLC ILIR, Electronics research area

Nov 2018

National Academies of Sciences

FELLOWSHIPS, HONORS & AWARDS

- ILIR (2020) — Spectral Signature Beacon Navigation, \$100K
- Milton Shaw Fellowship (2019–2020) [\[link\]](#)
- ILIR (2018) — H-PDLC Bio-inspired Vision Navigation, \$130K
- EXPERTS Fellowship — Experiential Practices in Education Research and Teaching in STEM, Drexel CASTLE (2017–2018) [\[link\]](#)

CERTIFICATIONS

- AWS Certified Solutions Architect – Associate — Amazon Web Services · Issued Jan 2026
- DevSecOps Technical Accelerator Program (DSO-TAP) – Practitioner, Cohort 3 — Lockheed Martin · CI/CD · Cloud · Security · DevOps · Agile · Graduated Jan 2026
- DAWIA Acquisition Professional — Systems Engineering (Levels I, II, III) — U.S. Army
- Active Secret U.S. Security Clearance — U.S. Department of Defense

PROFESSIONAL EXPERIENCE

Product Owner · Technical Lead <i>Lockheed Martin — CyberQuest Academy</i>	Jul 2026 – Present
Technical Lead <i>Lockheed Martin — CyberQuest Academy</i>	Dec 2025 – Jul 2026
Senior Full-Stack Engineer <i>Lockheed Martin — CyberQuest Academy</i>	Nov 2024 – Nov 2025
Senior Software Engineer <i>Lockheed Martin — Display Department</i>	Nov 2022 – Present
Electrical Engineer, PNT Division <i>U.S. Army DEVCOM C5ISR Center</i>	Apr 2009 – Nov 2022
Vehicle Integration Lead <i>U.S. Army CERDEC — C4ISR On-The-Move</i>	Nov 2006 – Apr 2009

SERVICE & MENTORSHIP

- Curriculum design — authored Rowan University's Web Programming course and RCBC's first Cloud Computing and DevOps sequence, including lab infrastructure and assessments.
- ECE senior design program modernization at Drexel — reviewed proposals, presentations, and demonstrations for 30+ teams per year.
- Supported Drexel's first fully-remote engineering course offering, pre-COVID.
- Mentorship of early-career technologists through the CyberQuest Academy platform (770+ users, 100+ classrooms).