Lucia (Lucy) O'Toole | lucyotoole.github.io

Objective: Seeking a research engineering posijtion
Available: June 1st (Part-Time), Sept 1st (Full-Time)

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EDUCATION

Worcester Polytechnic Institute | B.S. Mathematical Science, B.S. Computer Science | GPA: 3.79 | Expected graduation: August 2025

Coursework: Graph Theory, Group Theory (Rubik's Cube), Real Analysis I/II, Graduate Linear Algebra, Operating Systems, Computer Networks, Machine Organization, Theory of Computation, Linear Programming

RESEARCH EXPERIENCE

WPI Major Qualifying Project: "Perfect State Transfer in Weighted Quantum Walks" | Jan 2025-Present | Researching linear algebra, group theory, and graph theory methods for quantum walks on graphs. Applications in Quantum Computing research and development. Published: https://digital.wpi.edu/pdfviewer/vq27zs37q

WPI Interactive Qualifying Project: "Web Scraping Needs and Limitations" | Jun-Aug 2024 | Researched web scraping methods and applications for automated data collection. Identified limitations through background research, interviews, and surveys. Developed recommendations for new technological features. Published: https://digital.wpi.edu/pdfviewer/6t053m080

PROFESSIONAL EXPERIENCE

Qualcomm Inc. - Software Engineer | Nov 2021-Jan 2023 | Applied network design optimization research to neural networks. Co-invented patent-pending system for parallelizing neural networks. Collaborated on network optimization techniques for neural network training.

Reservoir Labs Inc. - Engineering Staff | Jun-Nov 2021 | Conducted R&D for computer network design optimization. Created programs analyzing impact of fiber optic cable additions between datacenters. Company acquired by Qualcomm.

PATENTS

N. Sebastián, et al. "Systems and Methods for Parallelizing Neural Networks Using Bottleneck Structures" (Unpublished, pending)

N. Amsel, et al. "Multi-Domain Network Data Flow Modeling" Appl. 18/049,159 (Pending)

https://patents.justia.com/inventor/lucia-regina-o-toole

RESEARCH AREAS

Quantum Computing, Performance Optimization, Theory, Systems, Networks, Algorithms

TECHNICAL SKILLS

Java, Python, R, SQL, C++, OCaml, LaTeX

ACTIVITIES

Philharmonic Orchestra (Cello), Artisanal Bread Baker, SCUBA, Sailing

AWARDS

Merit. Math Award May 2nd, Pi Mu Epsilon (Alpha), WPI Dean's List 22-24, Putnam