

Amaan Khan

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Research Interests

Cyber-Physical Systems Security, Formal Methods, Adversarial Machine Learning, Autonomous Systems, Trustworthy AI

Education

Washington University in St. Louis | St. Louis, MO

Master of Science in Cybersecurity Engineering 2026

Bachelor of Science in Computer Science 2025

Research Experience

Cake-Cutting Fairness Explorations 2025

Advisor: Dr. Ron Cytron

Washington University in St. Louis, CSE REU Program

- Studied and implemented fair division algorithms including cut-and-choose, divide-and-choose, and envy-free protocols for divisible and indivisible resources
- Analyzed algorithmic trade-offs between fairness criteria (proportionality, envy-freeness, Pareto efficiency) in resource allocation
- Developed educational exercises demonstrating computational complexity and game-theoretic properties of cake-cutting algorithms for Mozilla's Responsible Computer Science curriculum

Teaching Experience

Washington University in St. Louis, Department of Computer Science and Engineering

Teaching Assistant - CSE 468T: Introduction to Quantum Computing (One semester) 2025

Teaching Assistant - CSE 131: Introduction to Computer Science (Three semesters) 2022–2023

Washington University in St. Louis, Department of Mechanical Engineering and Materials Science

Teaching Assistant - MEMS 202: Introduction Computer-Aided Design (One semester) 2022

Leadership & Activities

WashU Robotics, SWARM Team, Software Engineer 2024–Present

- Developing autonomous docking system for modular robots using ROS2 action servers and Gazebo simulation
- Implementing path planning algorithms for coordinated multi-robot navigation

WashU AI Racing, Perception Team *Starting Spring 2026*

Awards & Honors

CMD-IT/ACM Richard Tapia Celebration of Diversity in Computing Conference Scholarship, 2025
Full scholarship from Washington University McKelvey School of Engineering

Technical Skills

Programming Languages: Python, C++, JavaScript, MATLAB, R, Bash/Shell

Tools & Frameworks: ROS2, Gazebo, PyTorch, scikit-learn, NumPy, pandas, Git