

# Raed Kabir

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Computer science and mathematics student focused on machine learning, embedded systems, and high-performance software, with experience in computer vision, FPGA systems, and full-stack development.

## EDUCATION

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### Oregon State University

*B.S. in Computer Science and Mathematics GPA: 3.6*

Corvallis, OR

Sep. 2022 – 2026

## EXPERIENCE

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### FPGA Developer Intern

*Optiver*

Summer 2025

*Sydney, Australia*

- Worked on **low-latency FPGA systems** supporting latency-critical trading infrastructure
- Developed and tested hardware components using **VHDL/SystemVerilog** and rigorous verification workflows
- Explored mechanisms for faster **network communication and data processing** across real-time trading systems
- Collaborated with experienced FPGA engineers to improve system **performance, accuracy, and reliability**

### Undergraduate Research Assistant

*Oregon State University*

March 2024 – July 2024

*Corvallis, OR*

- **Collaborated with mathematics faculty** to investigate linear algebra proofs related to matrix convexity and spectral radius behavior
- **Developed Python scripts** to automate analysis of matrix classes and streamline verification through computational experiments

### Coding Instructor

*Code Ninjas*

Feb. 2021 – Aug. 2023

*Bethany, OR*

- **Hosted 10+ coding boot camps** for classes averaging **30 students**, using game development to teach core programming concepts
- **Designed hands-on lessons** in loops, conditionals, and event-driven programming, contributing to a **30% increase in student enrollment**

## PROJECTS

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### **Lens Validation Tool** | *OptiTrack, Python, Computer Vision*

Sept 2025 - Present

- Built a **lens validation tool** for OptiTrack pipelines to verify calibration quality and camera accuracy
- Analyzed **reprojection error, distortion consistency, and alignment issues** from tracking and calibration outputs
- Automated validation checks to reduce manual debugging and improve motion capture reliability

### **Catalytica** | *Firebase, Google Cloud, JavaScript, Tailwind CSS*

March 2025

- Led development of an AI-powered wildfire response platform for a 24-hour hackathon
- Integrated **Google Maps API** and NASA FIRMS data to visualize wildfire threats in real time
- Used **Firebase Cloud Functions** and Gemini AI to generate safety recommendations; won **1st place in the Google Tech Track**

### **TellTail** | *Python, TypeScript, React, Tailwind CSS, PyTorch*

Jan 2025 – Feb 2025

- Trained a multi-layer neural network to **classify dog and cat breeds from images**
- Built a responsive full-stack application with a custom frontend/backend pipeline for **real-time predictions**
- Improved **validation accuracy** through PyTorch experimentation and learning-rate tuning

## TECHNICAL SKILLS

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**Languages:** Python, C/C++, Java, JavaScript, TypeScript, VHDL, SystemVerilog

**Frameworks & Libraries:** React, Node.js, PyTorch, TensorFlow, NumPy, Tailwind CSS

**Systems & Graphics:** FPGA Development, Computer Vision, OpenGL, GLSL, WebGL, Ethernet, TCP/UDP

**Tools:** Git, Docker, GDB, Firebase, Figma, Neovim, Tmux