

# Omkar Kovvali

703-939-0477 | [okovvali5@gmail.com](mailto:okovvali5@gmail.com) | [linkedin.com/in/omkarkovvali](https://www.linkedin.com/in/omkarkovvali) | [github.com/OmkarKovvali](https://github.com/OmkarKovvali)

## EDUCATION

---

### Virginia Commonwealth University

*Bachelor of Science in Computer Science | GPA: 3.86/4.00*

Richmond, VA

*Aug. 2024 – present*

### Thomas Jefferson High School of Science and Technology

*High School Diploma | SAT: 1580*

Alexandria, VA

*Aug. 2020 – Jun. 2024*

## TECHNICAL SKILLS

---

**Languages:** Python, Java, JavaScript, TypeScript, SQL, R, HTML/CSS

**Technologies:** React, FastAPI, Node.js, PostgreSQL, Docker, AWS EC2, GCP, PyTorch, TensorFlow, NetworkX

## EXPERIENCE

---

### Founder

*OtoScan*

Aug. 2022 – Jun. 2024

*Alexandria, VA*

- Built **OtoScan**, a \$9.50 otitis media screening system combining a custom 3D-printed otoscope with a CNN-powered mobile app to democratize ear infection diagnosis in underserved communities.
- Conducted simulated ear trials to validate robustness for deployment; received positive feedback and endorsement from Harvard and Stanford physicians for clinical viability.
- Published paper at top medical AI conference (MICCAI AMAI); featured on ABC7 news; formally recognized by the United States House of Representatives.

### Research Intern

*Johns Hopkins University School of Medicine*

Jun. 2022 – Mar. 2024

*Baltimore, MD*

- Cold-emailed 50+ bladder cancer researchers to pitch a novel urine-based diagnostic strip test ; joined the McConkey Lab as the **youngest collaborator in the building's history**.
- Progressed from pipetting to independently maintaining multiple cell culture lines and running ELISAs, Western Blots, PCR, and mass spectrometry within 3 weeks of joining.
- Investigated natural therapies against cancer cell lines to detect biomarkers; completed a second independent research project in parallel with primary responsibilities.

### Machine Learning Intern

*Roswell Park Comprehensive Cancer Center*

Sep. 2021 – Apr. 2023

*Buffalo, NY*

- Developed **Aether**, a CNN-based deep learning pipeline for detecting early-stage respiratory disease from audio signals, improving diagnostic accuracy to 97%.
- Collaborated with oncologists to integrate the model into planned clinical workflows; **co-authored multiple pulmonology case studies** analyzing pneumothorax complexities.
- Proposed and designed a prospective clinical trial to collect real-world audio data for lung cancer detection.

## PROJECTS

---

### Cascade | *Python, TypeScript, React, FastAPI, PostgreSQL, NetworkX, Claude API*

- Built a **supply chain simulation platform** with **bitemporal event sourcing**, modeling semiconductor disruptions with time-travel queries and checkpoint branching for what-if scenario analysis.
- Implemented **backward BFS root cause tracing** through a **topologically-sorted DAG** engine to surface upstream bottlenecks and constraint propagation paths for delayed orders.
- Integrated **Claude SDK with 13 custom tools** for agentic scenario generation—natural language queries autonomously run simulations, compare interventions, and trace delays via tool-calling.

### RagaMatch | *Python, PyTorch, React, FastAPI, AWS EC2, Docker, Nginx*

- Built and deployed a full-stack ML app for Carnatic raga classification using a **TDNN + LSTM + Attention** model trained on 170+ ragas; containerized on **AWS EC2 with Docker** and Nginx.

## AWARDS & HONORS

---

**MICCAI AMAI Best Paper Honorable Mention (Top 3/51)** · **International Science and Engineering Fair Finalist (Top 1800/7M)** · Congressional App Challenge Winner · HackDuke Best Beginner Hack