

# ABHAY SHUKLA

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## EXPERIENCE

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### Stanford Center for Biomedical Informatics Research

2024 - Present

*Gevaert Lab Student Researcher*

*California*

- Developed AI models for breast cancer research under the guidance of Dr Chris Sadée, using ML and CV for 3D breast region reconstruction and microcalcification/tumor detection.

### FRC 604: Quixilver Robotics

2022 - Present

*Controls/Software Lead (10)*

*California*

- Utilized computer vision, sensor integration, sota team software, and strategic mechanism design to create competitive 150-lb 30" x 30" FRC robots.
- Leadership in robot design, manufacturing, programming, strategic analysis, and community outreach led the team's international ranking to increase from #71 to #12.

### UCLA COSMOS (CA Summer School for Mathematics & Science)

2024

*Brain-Inspired Computing Cohort Member*

*California*

- Explored neurobiological mechanisms and 20+ ML mechanisms under UCLA Prof. Hugh Tad Blair, creating basic ML solutions to address problems on campus.

## PROJECTS

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### StereoSampleGAN

*GitHub Repo*

- Developed a generative AI architecture for high-quality stereo audio generation. Used advanced signal processing, attention mechanisms, and time-series analysis.
- Architecture pioneers stereo audio generate at 44.1 kHz while reducing training epochs by 99.77% and parameter count by 9.56x compared to WaveNet.

### Quickscout

*GitHub Organization*

- Developed a scalable scouting app to capture and visualize large-scale FRC event data. Access to new metrics allows informed strategic decisions and fuels the team's international success.
- App supports 150+ users on FRC604 and has been used to record all actions during 1000+ event matches over 2 years. Trained 10+ team members in app development and design.

### SporeStrike

*Pitch Slide Deck*

- Developed an affordable and high-drone-based fungicide disposal system, 3D-printed drone design prototypes, and theoretical market strategy.
- Product reduces inefficiencies with manual fungicide disposal, preventing food waste equivalent to feeding 4 billion people and winning first place in the 2024 FlexFactor Championships.

## EDUCATION

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### Leland High School

4.00 UW A-G

Junior

San Jose, CA

## SKILLS

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### Technical Fields

AI/ML, Robotics, Signal Processing, 3D Printing, CAD, Webdev/Appdev

### Other

Digital Audio Production, Graphic Design, Video Editing

## HONORS & AWARDS

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|---|------|
| • FRC604: City of San Jose Recognition for STEM Outreach and Team Performance | 2024 |
| • WCP CADathon/Robot Design Challenge Finalist (Top 10 Internationally)       | 2024 |
| • OneHacks III Hackathon: Third Place (3/120 Internationally)                 | 2023 |