

ABHAY SHUKLA

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EXPERIENCE

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 and improve 125 lb 30" x 30" multifunctional FRC team robots.
- Leadership in robot design, manufacturing, programming, strategic analysis, and community outreach led the team's global 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

StereoSampleGAN

GitHub Repo: <https://github.com/shuklabhay/stereo-sample-gan>

- 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.

Quicksout

GitHub Organization: <https://github.com/frc604>

- 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 collect all actions during 1000+ event matches over 2 years. Trained 10+ team members in app development and design.

EDUCATION

Leland High School

4.00 UW A-G

Junior

San Jose, CA

SKILLS

Technical Fields

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

Other

Digital Audio Production, Graphic Design, Video Editing

HONORS & AWARDS

- | | |
|--------------------------------------------------------------------------------------|------|
| • FRC604: City of San Jose Recognition for STEM Outreach and Team Performance | 2024 |
| • WCP CADathon (Robot Design Challenge) Finalist (Top 10 Internationally) | 2024 |
| • NextFlex: FlexFactor Innovation Competition Championship Winner (1/260 Regionally) | 2024 |
| • OneHacks III Hackathon: Third Place (3/120 Internationally) | 2023 |