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 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

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 collect 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

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
- OneHacks III Hackathon: Third Place (3/120 Internationally) 2023