

ABHAY SHUKLA

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EXPERIENCE

Stanford Center for Biomedical Informatics Research <i>Gevaert Lab Student Researcher</i>	November 2024 - Present <i>California</i>
<ul style="list-style-type: none">Developed multi-GPU ML/CV algorithms for microscopic and large medical imager region segmentation (supervised & unsupervised).Produced detailed scientific documentation to communicate research findings. All research done under the mentorship of researcher Chris Sadée.	
UCLA COSMOS (CA Summer School for Mathematics & Science) <i>Brain-Inspired Computing Cohort Member</i>	July 2024 - August 2024 <i>California</i>
<ul style="list-style-type: none">Integrated foundational neurobiological principles into machine learning models for rat neuron behavior, image geolocation, and character recognition under the mentorship of UCLA Prof. Hugh Tad Blair.	
FRC 604: Quixilver Robotics <i>Controls/Software Lead (10)</i>	June 2022 - Present <i>California</i>
<ul style="list-style-type: none">Designed and implemented high-performance tele-autonomous FRC robots, integrating real-time computer vision, multi-modal sensor integration, and strategic mechanism design to boost autonomous performance and achieve a top 0.1% team ranking (12/10,000+) internationally.Led 15+ members in developing a real-time FRC competition data collection and visualization platform, transforming 8 years of team knowledge into informed strategic decision-making. App currently serves 175+ users who have collected data for 1000+ matches.	

PROJECTS

StereoSampleGAN - [GitHub Repo](#)

- Developed a novel generative AI architecture for high-quality stereo audio generation leveraging custom-collected drum data, effective signal processing representations, and efficient training techniques
- Architecture pioneers stereo audio generation at 44.1 kHz while increasing audio quality by 85% and reducing training time by 25x (compared to DrumGAN & WaveGAN respectively).

Vox Transformis - [Science Fair](#)

- Developed an AI-based framework to translate audio while preserving rhythmic, literal, and melodic creatures by utilizing multimodal LLMs, voice cloning, and a phonetically constrained DTW algorithm.

SporeStrike - [Pitch Slide Deck](#)

- Engineered an affordable drone-based fungicide disposal system and 3D-printed prototypes to improve efficiency of farm fungicide disposal and prevent food waste equivalent to feeding 4 billion people. First place project at the 2024 FlexFactor Entrepreneurship Championships (1/260).

EDUCATION

Leland High School Junior	4.00 UW A-G <i>San Jose, CA</i>
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SKILLS

Technical Fields	AI/ML, Robotics, Research, Signal Processing, 3D Printing, CAD, Webdev/Appdev
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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
FRC604: World Championship Milstein Division Winner (12/3500 Internationally, 4/300 in CA)	2024
OneHacks III Hackathon: Third Place (3/120 Internationally)	2023