Lucas Yan

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EDUCATION

University of California, San Diego San Diego, California

Bachelor of Science in Mathematics-Computer Science *Sept. 2024 – June 2027*

EXPERIENCE

Web Developer Jan 2025 – Present

University of California, San Diego *San Diego, California*

- Developing a responsive website for UCSD Triton Robosub team using **HTML, CSS, and JavaScript**, showcasing the team's autonomous underwater vehicle project
- Applying web performance optimization techniques and ensuring **cross-browser compatibility** to deliver a seamless user experience across various devices and platforms
- Utilizing **React** components and state management to create a dynamic and interactive user interface, enhancing the presentation of team achievements and project details

Undergraduate Researcher Jan 2025 – Present

University of California, San Diego *San Diego, California*

- Developing deep learning model for automated piano reduction of polyphonic music using **PyTorch** and **TensorFlow**, under the supervision of Professor Schlomo Dubnov, a professor under both the Computer Science department and Music department
- Utilizing and processing 3 large-scale data sets, totalling **400+** pieces from MusicNet, URMP, and Bach Chorales datasets
- Experimenting with various neural network architectures, including **transformers** and **LSTMs**, to capture long-term musical dependencies

Machine Learning Intern Jan 2024 - May 2024

DSO National Laboratories *Singapore, Singapore*

- Developed a speaker recognition system using **SpeechBrain** to calculate cosine similarity between consecutive audio segments and detect speaker changes.
- Utilized **x-vector** and **ECAPA** pre-trained models to extract speaker embeddings from audio data.
- Implemented algorithms to compute cosine differences to identify speaker transitions

Signals Platoon Commander Jan 2022 – Nov 2023

Singapore Armed Forces *Singapore, Singapore*

- Led a platoon as a **Signals Officer**, managing communications infrastructure and operational readiness
- Troubleshoot complex systems and resolved technical issues in high-pressure environments
- Coordinated battalion-level exercises, showcasing **leadership** and **team management** skills

PROJECTS

Real Time Face Detection | *Python, OpenCV, Tkinter* Sept 2024 - Oct 2024

- Built a face detection application using **OpenCV** and **Haar cascades** for real-time face detection using on video and webcams
- Designed a **user-friendly GUI** with **Tkinter** to streamline user interaction and visualize results effectively
- Optimized **image processing** by analyzing **face aspect ratios** to validate detections, improving detection accuracy across diverse lighting and background conditions

TECHNICAL SKILLS

Languages: Java, Python, C, JavaScript, HTML/CSS
Technologies: React, Node.js, OpenCV, pandas, NumPy, Matplotlib, TensorFlow, PyTorch, Git

RELATED COURSEWORK

CSE29: Systems Programming and Software Tools
CSE11: Introduction to Computational Problem Solving in Java