

Philip Pincencia

La Jolla, CA (619) 806-7630 ppincencia@ucsd.edu [linkedin.com/in/1618lip](https://www.linkedin.com/in/1618lip) github.com/1618lip

Education

University of California San Diego

September 2022 – December 2025

Bachelor of Science in Computer Engineering, Minor in Mathematics

La Jolla, CA

- 3.97/4.00 overall GPA, 3.95/4.00 major GPA, course list available [here](#)

Relevant Coursework: Random Processes, Intro DSP, Linear Systems, Algorithm Design and Analysis, Advanced Data Structures, Digital Logic

Experience

Signal Processing Chair

June – Present

IEEE@UCSD

La Jolla, CA

- Responsible in forming and leading a team for **the Signal Processing Cup** hosted by the IEEE SPS. Topic is on real versus computer-generated image detection in the wild. Currently on the process of preparing resources and recruiting.

Research Intern

June – August 2024

Jacobs School of Engineering

La Jolla, CA

- Implemented a **Variable Order Markov Model** algorithm using a **Multiway Trie** to analyze the temporal dynamics of melodic complexity of a jazz solo and recursively computed the probability of any note given any context.
- Processed raw chord changes from the WJazz Database using **C++** and **Regex** to be parsed by the Python Code, which is optimized to increase efficiency by at least 50%.
- Uses jazz theory and **Mutual Information** method to induces pitch probability distribution given harmonic context.
- Researched various measures and analysis methods and benchmarked them to determine which methods are suited.
- Secured funding through the TRELS Scholarship twice and presented at the Summer Research Conference.

ECE Tutor

April – Present

Jacobs School of Engineering

La Jolla, CA

- Tutored undergraduate students in a **signals & systems class** and facilitated learning by proctoring quizzes and final exam, conducting weekly office hours, answering 200+ questions on the online class forum with an average response time of 5 minutes.
- Lead **Quiz Reviews** to help prepare for the upcoming quiz by meticulously formatting the questions and drawing plots and circuits using LaTeX to resemble the true quiz style.

Supplemental Instruction Leader

June – December 2023

Teaching and Learning Commons

La Jolla, CA

- Supported MATH 20B (Calculus II) and PHYS 2B (Electricity & Magnetism) courses by leading in-person and remote sessions that utilize fun, creative methods to review important concepts covered in lectures.
- Supported students earned on average half to a full letter grade higher than the peers who do not, and feedback received indicated students have a more positive attitude towards the subject.

Projects

Speaker Recognition | *MatLab, LaTeX*

July - August 2024

- Implemented a Speaker Recognition System in *MatLab* using **Mel-Frequency Cepstrum Coefficients** (MFCC), vector quantization and K-clustering.
- Tuned the **Kaiser-Bessel** Window Size, Number of Mel Filter Banks, Number of MFCCs, and Number of Centroids for maximum performance, which yields more than **80%** in accuracy from the test data set and a tolerance of at least **18dB SNR** of added noise.
- Currently working on making a simple GUI to allow easier use to the general public.

Echo Cancellation | *MatLab*

March 2024

- Mathematically derived the formula to find the system's **impulse response** using **White Noise**.
- Applied autocorrelation function to determine the delay amount and attenuation factor, which are used to do echo cancellation via Inverse Filtering.

Technical Skills

Languages: MATLAB, Python, C/C++, HTML/CSS, Java, JavaScript, ARM Assembly, SystemVerilog

Tools/Libraries: VSCode, AutoCAD, Altium, LTSpice, Blender, Raspberry Pi

Languages: Indonesian (Native), English (Professional)

Achievement

UCSD SUMS Integration Bee: Top 8 overall