# Kian Zohoury

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## Bio

A new graduate from the University of California, Berkeley, with a strong background in mathematics and machine learning, seeking to enter the industry as a software engineer. Willing to relocate and work fully in-person.

## Education

**University of California, Berkeley** **May 2022**
*B.A., Computer Science* *Berkeley, CA*

- Major GPA: 3.51/4.0; Regents' and Chancellor's Scholarship
- *Relevant Coursework:* Data Structures, Deep Neural Networks, Discrete Math & Probability, Efficient Algorithms, Intro to AI, Intro to ML, Linear Algebra & Differential Equations, Machine Structures, Multivariate Calculus, Natural Language Processing, Principles & Techniques of Data Science

## Skills

- *Languages*: Python, Java, C/C++, SQL, JavaScript, HTML, LaTeX
- *Libraries/Frameworks*: PyTorch, NumPy, Scikit-Learn, Pandas, Scipy, Matplotlib, Django, JQuery, React
- *Theory*: Regression, classification, clustering, decision theory, adversarial training, optimization, signal processing, asymptotics, graph theory, approximation algorithms
- *Other*: Testing, debugging, writing documentation, visualizations

## Projects

**Music Source Separation** | PyTorch, Torchaudio, Numpy, Poetry, Sphinx **2022**

- Built a light-weight deep learning toolkit (packaged with Poetry) for training PyTorch models that split music tracks into *stems* (e.g. vocals), useful for music transcription, generation and speech recognition.
- Incorporated ideas in computer vision (i.e. semantic segmentation) and digital signal processing (i.e. discrete Fourier transform) to design a performant deep convolutional variational autoencoder network (UNet-VAE).
- Made several architectural improvements (e.g. latent space regularization and self-normalizing networks) and code optimizations (e.g. mixed precision and GPU-accelerated BSS evaluation) to reduce performance bottlenecks and training/development time present in existing libraries.

**Artistic Style Transfer** | PyTorch, Torchvision, MTCNN, OpenFace **2022**

- Implemented an efficient style transfer model (ResNet trained on MS-COCO) that transformed images using an artistic style (e.g. Van Gogh).
- Achieved high qualitative results by penalizing obscured human faces (embedded with OpenFace), and preserving color (i.e. luminance channel transfer) and pixel smoothness (i.e. total variation regularization).

**Recycling Assistant** | PyTorch, Torchvision, React Native, Django, SerpApi **2021**

- Collaborated with four classmates on a prototype web application that utilized image classification to help users better identify recyclable goods.
- Harnessed React Native to implement a compelling UI, and Django to deploy a pretrained model that was optimized for recycling classification ($\sim$90% accuracy) via transfer learning on a custom dataset (8k+ images).

## Experience

**Freelance** **July 2016 – Dec. 2018**
*Mix Engineering* *Los Angeles, CA*

- Applied technical methods in mixing and mastering, learned through a year-long accredited music program in Los Angeles (Icon Collective), to assist vocal artists and music producers in releasing industry quality music with reputable independent record labels.