# Aaron Broukhim

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## Summary

I'm looking to apply proficiencies in research, machine learning, and design to industry while contributing to an inclusive work environment.

## Education

**University of California San Diego**                                                    2022-Present
**Ph.D. in Computer Science**
> Deep Learning, Generative Models, Information Visualization

**University of California San Diego**                                                    2019-2021
**B.S. in Cognitive Science** with emphasis on Machine Learning & Neural Computation       GPA: 3.6
Minor in Computer Science & Engineering
> Supervised/Unsupervised/Reinforcement/Deep Learning, Genetic Algorithms,
> ML in Music, ML in Brain Computer Interfaces, Human-AI interaction

**Santa Monica College**                                                                  2015-2019
**Computer Science & Visual Communications**                                              GPA: 3.5
> Engineering Physics, Data Structures, Assembly,
> Typography, Color Theory, 3D Animation, Photography, Art

## Experience

**University of California San Diego**                                              June 2021-Present
**Research Assistant**
> -Web Scraped Facebook using Selenium to make inferences on a user's connections
> -Designed logistic regression models capable of detecting hate speech on Twitter
>  & used word embedding (Word2Vec) to bin dataset into different types of hate speech
> -Designed and implemented a UI in React with a Node and Flask backend to help
>  non-tech savvy users identify faulty ML systems
> -Created SQL databases on an AWS server and conducted queries to support UI backend
> -Built Balltree with various similarity metrics to show similar tweets that may be mislabeled

**Virufy**                                                                    January 2022-August 2022
**Associate Audio Machine Learning Engineer**
> -Peer reviewed ML research involving cough audio classification in Tensorflow and SK-Learn
> -Utilized Sagemaker to explore new feature and architecture combinations with novel data

**Hotpoint App/Samuels Advertising**                                      Summer of 2015, 2016 & 2017
**Graphic Design Internships**
> -Designed one sheets, logo prototypes, geotags, and for-print graphics

## Projects

**Vehicle Motion Forecasting**
> -Explored various model architectures (MLP, LSTM, CNN, Transformer) to predict motion of a car
> -Selected and normalized relevant features (position, velocity, lanes) from the Argoverse dataset
> -Achieved highest performance via an MLP with a **RMSE of 1.48**

**Snake Reinforcement Learning**
> -Utilized N-Step Temporal Difference and SARSA methods to play snake and compared performance
> -Designed a custom Open-AI gym environment and deep Q-Learning agent in keras that reached
> **level 20** consistently (max 40) with a small state space of 10 and action space of 3

## Skills

**Programming Languages** - Python, SQL, Java, CSS, HTML, C++, C, Javascript
**Frameworks** - Pandas, NumPy, SK-Learn, TensorFlow, Keras, PyTorch, Selenium, React, Node, Flask
**Spoken Languages** - English, Spanish, Farsi, Hebrew
**Misc** - Git, Sagemaker, MySQL, AWS, Illustrator, Lightroom, Photography, Firebase