Anand Jain

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EDUCATION

University of Chicago *B.S.*, Computer Science. **Expected Jun 2021**
Santa Clara High School **2017**

COURSES

•Abstract Linear Algebra •Algorithms •Computer Systems •Discrete Math
•Electronics •Inventing Interactive Devices •Mathematical Logic
•Molecular Engineering •Quantum Computation

SKILLS

Languages: Python, Julia, Go, Bash, C/C++, SQL
Packages: PyTorch, Gym, TensorFlow, Scikit-Learn, Pandas, Flask
Spoken: Fluent English. Classroom Hindi, Spanish, and Mandarin

EXPERIENCE

Fermilab - LSST Machine Learning Intern **Jun - Aug 2019**
•Researched the applications of neural differential equations in astronomy for the Large Synoptic Survey Telescope (LSST)
•Used the PLAsTiCC Astronomical Kaggle dataset to train a neural network to approximate the differential equation of different astronomical objects' light curves (brightness over time)
•Presented poster of my work on Neural-ODEs at 2019 LSST Conference in Arizona
•Worked with peers and mentors to create a high level API for fast prototyping and ensemble training of neural networks for astronomy datasets, primarily in PyTorch

- **Tools:** TorchDiffEq, DifferentialEquations.jl, PyTorch, TensorFlow, Matplotlib, Astropy, Python, Julia
- **Link :** github.com/deepskies/cosmoNODE and /dsutils

PROJECTS

codebyhand: applying handwriting recognition
•Goal: Use handwriting in IDE and match with code suggestions
•Trained convolutional net on Extended MNIST (EMNIST) dataset
•Wrote 'paint' program that live infers character after each stroke
•Saves new labeled data to disk in Pytorch ImageFolder format for retraining
•Todo: character bounding box detection and inference using stroke direction and order

- **Tools:** pytorch, torchvision, torchtext, tkinter
- **Link :** github.com/anandijain/codebyhand

sippyart: variational-autoencoders for music generation
•Preface: I've been making music on my computer for a few years and have uploaded a few hundred tracks by chronology
•Goal: Learn generative models like GANs and autoencoders
•Built tool to recreate images and 1-2 second sections of audio using convolutional variational autoencoders
•Model learns to recreate melody better than rhythm, examples in README
•Todo: Make sequential embedding from one audio segment to the next using LSTM with the encoded

- **Tools:** pytorch, torchaudio, torchvision
- **Link :** github.com/anandijain/sippyart

ACTIVITIES

UCQuantum (.org) - Founder/President **Aug 2019 - Now**
•Undergraduate Student Organization of ∼50 facebook group members, ∼10 active
•Toured Prof. David Schuster's lab and learned about cooling to superconducing temperatures and software interfaces to quantum computers
•Planning a hackathon in spring to make Prof. Schuster's computers compatible with QuTiP and qiskit