Anand Jain

github, linkedin : anandijain   anandj@uchicago.edu
site: anandj.net   (408)597-4214

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 applications of neural differential equations in astronomy for the Large Synoptic Survey Telescope (LSST)
- Used PLAsTiCC Astronomical Kaggle dataset to train a neural network to approximate the differential equation of different 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

gym-sips: machine learning in sports betting on google cloud

- Collected ∼1000 games of NFL, NHL, NBA, and MLB odds and scores on Linux VMs
- Trained/tested LSTM model to predict odds and scores on $\sim 5 \times 10^5$ rows of 20 features
- Created a discrete and continuous action space gym environment where agent either picks one team to place money on or allocates some amount to each
- Tested the PPO, SAC, and DDPG algorithms from OpenAI's Spinning Up in RL
- Agent learns to hedge across time and returns a positive reward on test set
  - **Tools:** pytorch, gym, spinningup
  - **Link :** github.com/anandijain/sips and /gym-sips

sippyart: variational-autoencoders for music generation

- 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
  - **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