Ritik Raina

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EDUCATION

UC San Diego

BS in Cognitive Science: Machine Learning and Neural Computation
June 2022 | San Diego, CA

LINKS

Github:// **rainarit**
LinkedIn:// **ritikraina**
Portfolio:// **ritik.xyz**

COURSEWORK

Artificial Intelligence Algorithms
Supervised Machine Learning
Modeling and Data Analysis
Deep Learning + Neural Nets
Computer Vision I
Advanced Data Structures
Computer Organization
Object-Oriented Design
Unix Tools and Scripting

SKILLS

Languages

Python • Java • C++ • Swift
MATLAB • C • LaTeX • SQL
JavaScript • Assembly • Bash

Frameworks/Tools

CUDA • Tensorflow • PyTorch
MXNet • Scikit-Learn • SciPy
OpenCV • OpenGL • Pandas
XGBoost • Vim • Git • Xcode
MongoDB

EXPERIENCE

IBM | Research Intern - Machine Learning

July 2020 - Present | San Diego, CA

- Developing machine learning methods to generate novel findings, that implicate the human microbiome in health and disease.
- Microbiome analysis using QIIME2, Qiita, and GNPS as well as study metadata normalization and transformation in Python.

CodePath | Technical Program Manager (iOS)

January 2020 – Present | San Diego, CA

- Teaching complex topics in iOS Development such as APIs, MVC Architecture, Database in Parse/MongoDB, WebKit, MapKit, and AVFoundation.
- Additionally, I design, develop, and provide my own in-class material to enhance the learning process of iOS to 45+ committed students.

STAR Capital | Research Intern

July 2019 – September 2019 | Jakarta, Indonesia

- Researched and developed a Cascade CNN in order for training recognition systems based on employee data using custom spatial algorithms and data structures for deriving facial landmarks.
- Helped with the development of facial recognition systems using pre-trained networks found in Huawei X2221-CL's smart camera.

RESEARCH

UCSD Mattar Lab | Researcher

June 2020 – Present | San Diego, CA

Worked with **Prof Marcelo Mattar** to create RL and Bayesian interface models that predict human decisions and the processes underlying them.

PROJECTS

Face Generation using StyleGAN

June 2020

- Implemented features to classify images based on certain facial attributes.
- Used **NVIDIA StyleGAN** architecture and code focused on a novel approach to generate realistic images.
- Further implemented a reversal model using **Tensorflow** and **NumPy** that freezes its VGGFace weights so the only update on each iteration of gradient descent is the input latent vector.

Autoencoders for Image Denoising

June 2020

- Built two types of autoencoders via **PyTorch** by using feed-forward neural networks.
- Trained denoising encoders which mapped noisy images into actual high-quality structures.
- Used **SciPy** to stack autoencoders which would allow compressed input images to decompress, hence producing life-like thumbnails.

Parstagram: Instagram Clone

Oct 2019

- Implemented an iOS Instagram clone using **Swift** except with additional drawing recognition and video filter composition (**AVFoundation**).
- Customized integration with **Parse** database and deployed via a **Heroku** sandbox server.