

Aman Rana

MACHINE- DEEP LEARNING | REINFORCEMENT LEARNING
COMPUTER VISION | DISTRIBUTED LEARNING | USER PRIVACY

PHONE: (470)263-3757 | EMAIL: ARANA@MEDIA.MIT.EDU

EDUCATION

Worcester Polytechnic Institute

M.S. in Robotics Engineering
May 2017 | Worcester, MA

Panjab University

B.E. in Mechanical Engineering
May 2015 | Chandigarh, India

SKILLS

TensorFlow | PyTorch | Keras

OpenCV | Scikit-Learn | Docker
Git | Linux | Pandas | Photoshop

Python | C++ | Java | Matlab
Javascript | HTML | CSS

COURSES

Graduate Courses

Computer Vision
Artificial Intelligence
Machine / Deep Learning
Intro to Data Science
Robot Control
Robot Dynamics

Udacity Courses

Full Stack Developer Nanodegree
PyTorch FB scholarship challenge

LINKS

LinkedIn: [/in/amanrana20](#)

GitHub: [/amanrana20](#)

Website: [www.arana.ai](#)

EXPERIENCE

Senior Research Support Associate

Camera Culture Group, MIT Media Lab

- Responsible for developing and implementing deep learning architectures on medical data to diagnose diseases.
- Successfully implemented generative adversarial network (GAN), RNN, reinforcement learning algorithms for various projects.
- Implemented and published a paper on using CNN-AutoEncoders for segmentation of gingival inflammation in oral images.

PUBLICATIONS

Computational Histological Staining and Destaining of Prostate Core Biopsy RGB Images with Generative Adversarial Neural Networks [\[ArXiv\]](#)

IEEE ICMLA 2018, Orlando, FL, USA (Accepted for publication)

December 2018

Python | TensorFlow | OpenCV | Numpy

Machine Learning Algorithms for Classification of Microcirculation Images from Septic and Non-Septic Patients [\[ArXiv\]](#)

IEEE ICMLA 2018, Orlando, FL, USA (Accepted for publication)

December 2018

Python | TensorFlow | OpenCV | Numpy | t-SNE

Automated Process Incorporating Machine Learning Segmentation and Correlation of Oral Diseases with Systemic Health [\[ArXiv\]](#)

IEEE JBHI 2018 (Submitted)

November 2018

Python | Statistics | Tensorflow

Automated segmentation of gingival diseases from oral images [\[IEEE Xplore\]](#)

IEEE NIH HI-POCT 2018, Bethesda, MD, USA (Published)

December 2017

Python | TensorFlow | OpenCV | Numpy

RESEARCH INTERESTS

Innovations in computational healthcare

Reward structure in reinforcement learning

Model interpretability

Distributed multi-agent learning

RELEVANT PROJECTS

Reinforcement Learning agent in OpenAI Gym

March 2018, Independent Project | Python | PyTorch

- Successfully implemented DQN for CartPole-v1 and Ant-v3 environments.

Lung cancer detection | Research project

January 2017-April 2017, WPI | Python | TensorFlow

- Successfully implemented an end-to-end pipeline consisting of two 3D CNN to get final classification and segmentation.
- Used novel technique to balance the voxel dataset.

A.I. agents to play Super Mario | Artificial Intelligence

February 2016-May 2016, WPI | Java | A* | Artificial neural network

- Successfully implemented A* algorithm and artificial neural network agents to play Super Mario game.

Real-time object detection | Computer Vision

October 2015-December 2015, WPI | C++ | OpenCV | SURF

- Successfully implemented SURF algorithm for real-time object detection of any given object using OpenCV.
- Made the demo robust to occlusions and light variations.

RELEVANT PROJECTS/RESEARCH

Artistic Style Transfer on Images

November 2018 | Python | PyTorch

- Successfully implemented Artistic style transfer in PyTorch.
- Achieved good results.
- Project live at [Artistic Style Transfer](#)