Mohammad Zaiyan Alam

alamm@usc.edu • GitHub • LinkedIn • Google Scholar • (323)470-1614

EDUCATION

University of Southern California, Los Angeles, CA — Jan 2019 - May 2021
Master of Science in Computer Science
Coursework : Analysis of Algorithms • Machine Learning • Database Systems • Applied Machine Learning for Games

Jamia Millia Islamia (JMI), New Delhi, India — Jul 2014 - May 2018
Bachelor of Technology in Computer Engineering (Honors)

SKILLS

Programming Languages : Python • JavaScript • C# • C++ • Java
Web : Flask • React • Node • Express • Angular • Bootstrap • Django
Databases/Cloud : MySQL • PostgreSQL • MongoDB • GCP • AWS
ML/Tools : SkLearn • Tensorflow • OpenCV • NLTK • Git • Docker

EXPERIENCE

AI Research Intern | Information Sciences Institute, Marina Del Rey, CA — May 2019 - Aug 2019
- Inaugurated team coordination strategy based on money in CS:GO using Reinforcement Learning algorithms
- Developed a **text detection** Deep learning model (**EAST**) in **Python** using **OpenCV** to extract text from game videos
- Achieved performance gain by **44%** from **9 fps to 13 fps**, parallelized the data processing pipeline on **HPC** system

Research & Development Intern | Indraprastha Institute of Information Technology, New Delhi — Jan 2018 - May 2018
- Developed an autonomous navigating Drone using Reinforcement learning algorithms **SARSA** & **Q-learning** in **Python**
- Trained the agent on Gazebo & **OpenAI-Gym**, implemented Monocular **SLAM** in drone for mapping the environment
- Benchmarked the training results on smooth learning rate vs risk factors regarding both policies comparing trade-offs

Undergraduate Research Assistant | Department of Computer Engineering, JMI, New Delhi — Mar 2017 - Mar 2018
- Performed analysis of image encryption algorithms in **Python** & MATLAB, achieved better Non-linearity score by **2%**
- Researched on break of algorithms, performed cryptanalysis in Python and published **two** research papers

Lead Web Developer | Department of Computer Engineering, JMI, New Delhi — Mar 2017 - Dec 2017
- Led a team of 8 students to develop the department's website using **AngularJS**, **NodeJS** and **MongoDB**
- Designed the website layout and developed homepage features like Events carousel, Noticeboard and Login

Summer Intern | Centre for Innovation and Entrepreneurship, JMI, New Delhi — Jan 2016 - Aug 2016
- Developed an Automatic Summarization app using **TextRank** algorithm on sentence graph in **NLTK** and **NetworkX**
- Performed data collection by scraping articles form Wikipedia using Scrapy in **Python** followed by data-preprocessing
- Wrapped the ML model as **REST API** in **Flask** and deployed on a web app to serve back summarized text to the user

PROJECTS

AI Drone Racing Game *(Tensorflow, Unity, Blender, WebGL, Python, C#)*
- Developing a human player vs AI drone racing game to be published as a WebGL build
- Working on training the ML agent using Deep Reinforcement Learning policy gradient method - **PPO**
- Implementing **CNN** to obtain optimal policy and using **Curriculum learning** to increase the performance of the agent

News Search Webapp *(Node.js, Express.js, React.js, Bootstrap, GCP, Docker, Javascript, HTML, CSS, JSON)*
- Developed a **responsive** webpage to display user selected top news headlines, using New York Times & Guardian News APIs
- Implemented features : social media sharing, comments section using CommentBox API and bookmarks tab
- Built a **search** bar and **autosuggestion** regarding user queries using Bing-Autosuggest API

Text Classification Webapp *(Kubeflow, Kubernetes Engine, Tensorflow, GCP, Flask, Python, Javascript, HTML, CSS)*
- Developed an end-to-end text classification ML **workflow** using **CNN** with accuracy of **86.63%** on GKE cluster
- Classified the client provided text into one of Tech, Business, Sports or World categories using the ML model
- Used Cloud Storage and TF-Serving to serve the model as a **REST API** using Flask - to host web-UI for monitoring

Self Driving Car **— RaceOn USC Hackathon** *(OpenCV, Raspberry-Pi3, Python, Jupyter)*
- Developed an autonomous mini-car with lane detection and collision avoidance, secured **6th** position out of 42 teams
- Implemented **Peak Detection** and PID algorithms in **OpenCV** & optimized the performance by **22.7%** achieving shorter lap time

ACHIEVEMENTS & ACTIVITIES

- Awarded *Merit Scholarship* for securing **2nd** position with GPA **9.88**/10 in Junior year during undergrad
- *Graduate Student Coordinator* - AILA Inc., Los Angeles, worked with the CEO to establish a chapter at USC
- Selected for *Graduate Student Scholarship* to attend & volunteer at **ICML** 2019, Long Beach, CA