Aditya Rastogi

GitHub Profile
Personal Website CSE - IITKGP

Email-id : **r.aditya0824@gmail.com**
Mobile No.: **917550916164**

ACADEMIC DETAILS

Education	Institute	Year	CGPA / %
B. Tech and M. Tech (Dual Degree): Computer Science and Engineering	IIT Kharagpur	2016 - 2021 (Expected)	**9.43 / 10**

INTERNSHIPS

Pattern Matching in Trillion Edge Graphs

Mitacs Globalink Research Intern, University of British Columbia *May'19-Jul'19*
(Advisor: Prof. Matei Ripeanu)

- Worked in a team to solve the problem of **approximate pattern matching in graphs** in a distributed systems setting.
- Compared our pattern matching algorithm with TriAD, a distributed RDF engine.

Research Areas: **Algorithms**, **Distributed Systems**, **Graph Theory**

Facial Landmarks Detection

Visiting Student Researcher, University of Sydney *Dec'18-Jan'19*
(Advisor: Dr. Mehar Khatkar)

- Designed and compared different **CNN** architectures with target point coordinates for detecting facial landmarks in different fish species.

Research Areas: **Deep Learning**, **Landmark Detection**, **Data Augmentation**

Sensor Diagnostics

Summer Intern, IIT-Kharagpur - Sponsored by Shell India Pvt. Ltd. *May'18-July'18*
(Advisor: Prof. Swanand Khare)

- Developed a **Python application** to **sample from an arbitrary finite-ranged probability density** in one dimension.
- Reduced dimensionality of multiple sensors time-series data using **PCA** and **autoencoders**.
- Worked on **gaussian-mixture models** and error distributions in general.

Research Areas: **Machine Learning**, **Dimensionality Reduction**, **Predictive Analysis**

PROJECTS

Deep Learning Visualization

TensorFlow.js, p5.js *Aug'19 - Present*
(Advisors: Prof. Partha Pratim Chakrabarti and Prof. Aritra Hazra)

- Working on developing a meta algorithm which would visualize, understand and observe what neural networks learn in their underlying latent representations and takes decisions to alter the network to improve performance.
- Working on actionability in neural networks given **feature visualizations** and **saliency mappings**.
- Working on **adversarial robustness**, **calibration**, **out-of-distribution detection** and **energy based models**.

Smart Rockets, Algorithmic Visualisations and Web-game Development

p5-js, HTML, CSS

- Developed Smart Rockets, a demo of a **genetic algorithm**. Developed algorithmic visualisations on the web for algorithms like **Convex Hull**, Voronoi Diagram, Longest Increasing Subsequence etc.
- Used p5.js for creating **fractal** designs like trees, koch curves and flow field visualisation of **perlin noise**.
- Developed casual, fast-paced and 2D puzzle web-games.

BLOG POSTS

- Understanding **SimCLR** - A Simple Framework for **Contrastive Learning** of Visual Representations
- Solving Racetrack in **Reinforcement Learning** using **Monte Carlo Control**
- Elucidating **Policy Iteration** in **Reinforcement Learning** — Jack's Car Rental Problem
- Visualizing Neural Networks using **Saliency Maps** in PyTorch
- The **GNU Toolchain** Explained