ANIKET SHARMA

Graduate Student (M. Sc. Computing Science) - University of Alberta
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EDUCATION

M. Sc. - Computing Science, University of Alberta — September 2023 – Present
GPA: 3.825/4
Relevant Courses: Theoretical Foundation of Machine Learning; Introduction to Reinforcement Learning; Reinforcement Learning II; Algorithmic Foundations of Privacy
Supervisor: Dr. Nidhi Hegde

B. Tech. - Computer Science and Engineering, IIIT Gwalior — August 2019 – June 2023
CGPA: 8.3/10
Relevant Courses: Artificial Intelligence; Reinforcement Learning; Machine Learning; Computer Vision; Pattern Recognition; Data Mining and Data Warehouse; Big Data Analytics
Thesis Topic: Implementation of Fairness Verification and Mitigation Techniques on Artificial Intelligence in Education (AIEd) Algorithms
Supervisor: Prof. Pramod Kumar Singh

RESEARCH EXPERIENCE

Research Intern — January 2023 - July 2023
FORT Lab, University of Alberta — *Edmonton, AB, Canada*

- Worked on a novel technique to generate synthetic data which are fair across multiple sensitive attributes (MultiFairGAN)
- Performed an extensive bibliographic search into bias mitigation techniques and prior works in AI in Education (AIEd) tools
- Evaluated various fairness metrics on the publicly available datasets for AIEd and Knowledge Tracing algorithms

Undergraduate Student Researcher — Aug 2021 - June 2023
Computational Intelligence and Data Mining Research Lab, IIIT Gwalior — *Gwalior, India*

- Designed and implemented a simulation of human episodic memory with Prof. Pramod Kumar Singh and Dr. Jay Prakash (accepted in ICAAI 2022)
- Extracted features from wikiHow articles and developed models to estimate the quality of the articles (accepted in IATMSI 2022)
- Developed an open-source web crawler to fetch data from wikiHow
- Devised a data-centric approach in order to improve the performance of machine learning models predicting HCV severity by **approx. 16%** (accepted in ISDA 2021)

PROFESSIONAL EXPERIENCE

Application Engineering Intern — May 2022 - Jul 2022
Google — *Bengaluru, India*

- Worked on the creation of incremental data integration pipelines from Salesforce to a weakly consistent global file system
- Created dashboards to provide key security and privacy insights about Salesforce footprints across Alphabet to the leadership and stakeholders
- Setup JWT authentication for the pipeline project

Artificial Intelligence Intern May 2021 – Sep 2021 & Dec 2021 – Jan 2022
Sprink *Bengaluru, India*

- Created a production-ready tool for solving Capacitated Vehicle Routing Problem with Time Window and Multiple Depots (CVRPTWMD) with additional constraints
- Employed modified K-means clustering algorithm with automated elbow method for solving Facility Location and Allocation Problem
- Hosted the developed tool using AWS Fargate and AWS Lambda

Software Developer Intern Sep 2020 – Nov 2020
cppsecrets.com *Delhi, India*

- Wrote **50+** blogs with cumulative **60,000+** views on the topic of AI/ML and Python
- Created an Event Prediction Model using Sentiment Analysis
- Contributed to Fingerprint Recognition System and Motion Detection System

TEACHING EXPERIENCE

Graduate Teaching Assistant Sep 2023 - Present
University of Alberta *Edmonton, AB, Canada*

- CMPUT 201: Practical Programming Methodology (Fall 2023)
- CMPUT 267: Basics of Machine Learning (Winter 2024)

SKILLS

Programming Languages	Python, Julia, C/C++, JavaScript
Skills	Artificial Intelligence, Reinforcement Learning, Machine Unlearning, Operations Research, DevOps
Technologies	Tensorflow, PyTorch, RLlib, JAX, SQL, AWS, Flask, Docker, Google OR Tools, Scikit-learn, Git

PUBLICATIONS

- **Sharma, A.**, Arora, A., Gupta, A., Singh, P.K. (2022). **Data-Centric Approach to Hepatitis C Virus Severity Prediction**. In: Abraham, A., Gandhi, N., Hanne, T., Hong, TP., Nogueira Rios, T., Ding, W. (eds) Intelligent Systems Design and Applications. ISDA 2021. Lecture Notes in Networks and Systems, vol 418. Springer, Cham. https://doi.org/10.1007/978-3-030-96308-8_39
- **Sharma, A.**, Singh, P.K., Prakash, J. (2022). **An Effective Implementation of Detection and Retrieval Property of Episodic Memory**. In: International Conference on Advances in Artificial Intelligence. ICAAI 2022.
- Arora, A., **Sharma, A.**, Singh, P.K. (2022). **Automated Quality Estimation of Collaboratively Created Content**. In: IEEE International Conference on Interdisciplinary Approaches in Technology and Management for Social Innovation. IATMSI 2022.

TRAINING AND CERTIFICATIONS

AI Career Accelerator Program Participant Sep 2023 - Present
Amii *Edmonton, AB, Canada*

- Mentored participants at Alberta's First GovTech Hackathon
- Build slides deck with potential hackathon ideas requiring diverse AI skills

VOLUNTEERING

- **President** at the Computing Science Graduate Students' Association (**CSGSA**) at the University of Alberta (2024-25)
- **Director of Academics** at the Computing Science Graduate Students' Association (**CSGSA**) at the University of Alberta (2023-24)
- Member of AI Working Group at WowDAO (since December 2023)
- Problem setter and tester for a programming contest held in IIIT Gwalior with **200+** participants
- **Panelist** at Summer Consilium organized by Rotaract to give academic and career advice to freshmen
- Taught mathematics to children of the local community who cannot afford proper education as part of **Student Gyan Movement IIIT Gwalior**

ACHIEVEMENTS

- **Winner** of the Worldwide AI Hackathon 2023 with 1700+ participants. 2023
- **Top 1%** of the **154** students certified out of 4514 students in the Reinforcement Learning course offered by NPTEL and IIT Madras. 2023
- Kaggle Expert x2: Has 3 Silver and 28 Bronze Medals with the best rank of 851 (/240,581)
- Ranked 95 (/5367) in India and 612 (/10177) worldwide in Google HashCode 2022 2022
- Ranked 60 in India and 396 (/9004) worldwide in Google HashCode 2021 2021
- Ranked 3 (/6000) in ML Zoomcamp Leaderboard 2021
- Certificate of Merit awarded by CBSE for outstanding performance in Secondary School Examination 2017
- Student of the Year award by The Times of India for excellent all-round performance 2017

PROJECTS

Comparing plasticity of transformers and recurrent neural networks in continual RL

- Setup the experimental structure using RLlib to train agents on switching POPGym environments to form a continual partially observable setting
- Compared weight changes and plasticity loss of GTrXL, GRU, LSTM, and Fast Autoregressive Transformer models.

Statistical Query Learning

- Performed a theoretical analysis of statistical query learning
- Proposed an algorithm to solve the rectangle problem using statistical queries

Sign Language to Text Translator

- Created and trained an ensemble of five neural networks using bootstrap aggregation
- Achieved 99.99% accuracy on observed signers and 44.11% accuracy on unobserved signers

Signature Forgery Detection with One-shot Learning

- Created and trained a Siamese neural network model
- Achieved 99.88% training set accuracy and 98.94% test set accuracy

OPEN-SOURCE CONTRIBUTIONS

- Wrote image encryption and decryption algorithms for a npm package with **350+** downloads
- Engineered a Python package to fetch wikiHow articles and query wikiHow in all 19 wikiHow supported languages

- Co-developed C++ libraries for machine learning algorithms and matrix manipulations
- Solo-maintainer of a GitHub repository with algorithms in multiple programming languages and **80+** contributors