Vikramjeet Das

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Education

Aug 2018 – Jun 2022(E) **B.E.** in Computer Science; **Minor** in Data Science — Birla Institute of Technology and Science, Pilani
Current CGPA: **9.67** — Ranked 2^{nd} of over 1000 students in the batch

Experience

May 2021 – Current **University of Illinois at Urbana-Champaign**, IL (Remote) — Research Intern
- Experimenting with methods for vital parameter estimation of humans from video, in collaboration with the University of Chicago (funded by C3.ai)
- Developing methods to detect anemia and estimate blood oxygen saturation and heart rate from videos

Feb 2021 – Current **Carnegie Mellon University**, Pittsburgh, PA (Remote) — Research Intern
- Working at XuLab to develop machine learning methods to predict mutation signatures and spectra and classify subtypes from whole slide images in collaboration with the Baylor College of Medicine
- Implementing methods to effectively distill important information from gigapixel histopathology images
- Developing methods to predict the MGMT mutation status from brain CT scans

Aug 2020 – Feb 2021 **R.S. Software India Limited**, Kolkata, India — Software Engineering Intern
- Developed software for fraud and risk management for real-time digital payments in India, including UPI
- Built fraud detection ML models and achieved F1 score of 0.7; enhanced performance, improved security, and ensured scalability

May 2020 - Jun 2020 **Central Electronics Engineering Research Institute, Pilani**, Pilani, Rajasthan — Research Intern
- Designed a deep learning based system to detect abnormalities in heart sound signature recorded using a digital stethoscope
- Developed code for preprocessing and training models to achieve over 0.95 AUC in detecting heart abnormalities
- Built an Android app using Kotlin for user-side interactions. This work was also extended for usage in preliminary diagnosis of COVID-19

Publications

1. **Vikramjeet Das**, Mandan Naresh, Paresh Saxena and Manik Gupta. Deep Reinforcement Learning with Importance Sampling for QoE enhancement in Edge-Driven Video Delivery Services. *Springer Soft Computing*. (under review)
2. Mandan Naresh, **Vikramjeet Das**, Manik Gupta and Paresh Saxena. Deep Reinforcement Learning based QoE-Aware Actor-Learner architectures for Video Streaming in IoT environments. *Springer Computing*. (under review)

Projects

Jan 2021 – Current **Reinforcement Learning to Generate ABR Algorithms**, Supervisor: Dr. Paresh Saxena and Dr. Manik Gupta
- Developing and testing improvements of the A3C algorithm to improve performance of adaptive bitrate algorithms for video delivery
- Integrated DeepMind's IMPALA architecture into the Pensieve framework and improved QoE performance by 25-48%.

Jan 2021 – Current **Computer Vision Methods for Anomaly Detection in Assembly Components**, Supervisor: Dr. Tathagata Ray
- Developing methods for automated anomaly detection in complex assembly components

Mar 2021 – Apr 2021 **File Transfer Protocol Inspired by Selective Repeat in Python**
- Built reliability into the application layer over UDP sockets

Feb 2021 – Apr 2021 **VIPAR: A lexer and parser in Java**
- Developed a CFG, with an LALR(1) lexer and parser for a Python-like language
- Wrote code to visualize the parse tree

Feb 2020 – Jul 2020

CheXtor: Deep Learning based Chest X-Ray diagnosis

- Developed a deep learning solution to diagnose common pathologies from Chest X-Rays
- Focused on handling data imbalance and interpretability
- Final AUC score of 0.865 is comparable to some of the best single models on the CheXpert leaderboard

Technical Skills

Machine Learning ● Deep Learning ● TensorFlow ● PyTorch ● Numpy ● Pandas ● SciPy ● scikit-learn ● Jupyter ● OpenCV ● Java Spring ● MERN Stack ● Mobile App Development ● Web App Development ● Git and Version Control ● Agile methods and Scrum
Languages: Python ● Java ● C/C++ ● Swift ● JavaScript ● Kotlin

Coursework

Foundations of Data Science ● Machine Learning ● Deep Learning ● Natural Language Processing ● Artificial Intelligence ● Software Engineering ● Discrete Structures in CS ● Data Structures and Algorithms ● Design and Analysis of Algorithms ● Object Oriented Programming ● Database Systems ● Computer Networks ● Principles of Programming Languages ● Theory of Computation ● Compiler Construction

Certifications

- **Deep Learning Specialization**, deeplearning.ai, Coursera: http://bit.ly/deeplearningspec
- **AI For Medicine**, deeplearning.ai, Coursera: http://bit.ly/aiformedicinespec

Awards and Achievements

- **AICrowd Blitz #3 | AI For Good**: 10^{th} position out of 325 participants. Username: vikramjeet_das
- **Merit Scholarship Awardee for all semesters till date**, received for being amongst the top 1% students in the batch