VIVEK GUPTA

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Education

Purdue University, West Lafayette   **Aug 2021 – May 2023**
Master of Science in Computer Science (Thesis Track)
GPA: 4.0/4.0
Related Coursework:

- Data Structures and Algorithms
- Compilers
- Statistical Machine Learning
- Information and Network Security
- Database Management Systems
- Computer Networks
- Computer Architecture
- Reinforcement Learning
- Deep Learning

Indian Institute of Technology, Roorkee   **July 2014 – June 2018**
Bachelor of Technology in Electronics and Communication (minor: Computer Science)
GPA: 8.733/10

Experience

Purdue University, West Lafayette   **Aug 2021 – Present**
Graduate Research Assistant, Graduate Teaching Assistant

- Designing a vision-based neural model using multi-modal transformers to perform object rearrangement in cluttered environments
- Developed an efficient deep learning policy for continuous action-space reinforcement learning environments using invertible neural networks, and achieved 138% better average returns than the DDPG algorithm on 3 OpenAI gym tasks
- Facilitating online discussions, holding office hours, evaluating and grading examinations, assignments, and projects as teaching assistant for statistical machine learning and compilers course

Adobe Systems Pvt. Ltd.   **Jul 2018 – Aug 2021**
Software Development Engineer II

- Worked on developing a platform-agnostic extensibility platform, which served 8 in-house teams and ∼300 external developers to create brand new features including Cloud Documents and Neural Filters for Adobe applications
- Led a team of five to design and create desktop widgets, incorporated by internal teams to develop 15+ feature plugins in 6 months
- Closely collaborated with teams to design integration APIs for new features inside Photoshop and InDesign
- Grabbed 2 special contribution awards for prototyping a new module for Photoshop, and for development and maintenance of project Sharesheet and Interactive Tutorial Builder

Big Data Experience Lab, Adobe Inc.   **May 2017 – July 2017**
Research Intern (Mentor: Anandhavelu Natarajan)

- Proposed a recurrent neural network architecture based on LSTM to predict style breaches in a collaborative document
- Achieved state-of-the-art results for Style Change Detection, PAN CLEF 2017
- Developed a model to provide consistent style to the documents using structural and lexical transformations

Projects

Group Recommendation using Inductive-Matrix Completion ⬤   **Sep 2022 – Nov 2022**

- Built a novel recommendation system using tripartite sub-graph extraction and Relational Graph Convolutional Network (RGCN) to predict the preference ratings for a group-item pair
- Obtained an RMSE score of 11.43 trained on ∼150,000 group-item and ∼100,000 user-item interactions for CAMRa2011 dataset

Compiler for USC Programming Language   **Jan 2022 – May 2022**

- Implemented compiler subroutines including Recursive Descent parsing, Semantic Analyzer, LLVM IR converter, optimizations and register allocation for compiling code in USC language (a subset of C Language)

Efficient Exploration using Bayesian Deep-Q Networks ⬤   **Nov 2021 – Jan 2022**

- Implemented Bayesian Deep Q-Networks in PyTorch and conducted experiments on 8+ atari games outperforming Double Deep Q-Networks in training time (about 5M fewer interactions) and improved returns (by a median of 300%)

Sign Language Character Recognition   **Jan 2017 – April 2017**

- Performed Skin Segmentation using YCbCr model and morphological operations to segment hand from images with 90% accuracy
- Trained a convolutional neural network classifier using STL-10 database to recognize hand gestures

Skills

Programming: C, C++, Objective-C, Swift, Java, Python, HTML/CSS, JavaScript, SQL (MySQL and PostgreSQL)

Libraries / Frameworks: Node.js, React, Angular, Django, scikit-learn, Numpy, Pandas, PyTorch, TensorFlow

Software / Ops : Git, Docker, AWS, GCP, Kubernetes, JIRA, Jenkins, CI/CD, A/B Testing

Publications

Pranav Ravindra Maneriker, Anandhavelu Natarajan, **Vivek Gupta**, et al. Predicting style breaches within textual content, May 12 2020. US Patent 10,650,094.

Vivek Gupta, Naresh Kumar, Aditi Sharma, and Ajith Abraham. Sensor routing protocol with optimized delay and overheads in mobile based wsn. *Journal of Information Assurance & Security*, 16(4), 2021.

Leadership

Mentor, Technovation 2020: Mentored a senior group of six girls to develop an iOS mobile application

Mentor, Adobe C++ Bootcamp 2020: Mentored a group of 5 new university graduates to learn about software industry coding standards and to create a C++ application

Event Lead, CSR: Led a CSR event at Adobe on Child Rights and Safety which attracted over 200 participants

Mentor, IITR Student Mentorship Program: Guided a group of seven students aimed at better senior-junior interactions

Organizer, Departmental Cognizance IITR: Organized events 'Spectrum' and 'Photonising' for three consecutive years in Cognizance, the large-scale Annual Technical Festival of IIT Roorkee

Member, Programming and Algorithms Group, IIT Roorkee: Organized lectures, events, and competitions to improve the algorithmic and problem-solving ability of university students

Awards and Recognition

Spot Award in 2019 and 2020 by Adobe for outstanding contribution to Adobe Creative Suite deliverables

Best Project Award in Java and Web Technologies Boot Camp 2018 by Adobe

IITR Development Award for project *Cashless Campus* during Annual Techno-Hobby exhibit, 2016

KVPY Fellowship by the Government of India for inclination towards scientific research

Honoured with the title of Amul Vidya Shree for being a top rank holder in state boards for standard X and XII