RUGVED MHATRE

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EDUCATION

New York University, New York   09/2023 – 05/2025
Master of Science in Computer Engineering | GPA: 3.8/4.0
Relevant Coursework – High-Performance Machine Learning, Deep Learning, Advanced Machine Learning, Advanced Computer Vision, Parallel and Customized Computer Architecture, Data Structures and Algorithms, Data Science (Stern)

University of Mumbai, Mumbai   08/2016 – 10/2020
Bachelor of Engineering in Electronics Engineering | GPA 3.6/4.0
Relevant Coursework – Database Management Systems, Neural Networks, Digital Image Processing

EXPERIENCE

New York University, New York | **Graduate Research Assistant**   08/2024 – Present
- Developing functional and timing simulators for performance analysis of the Ring Processing Unit, a vector-architecture processor for Privacy-Preserving Machine Learning
- Collaborating with PhD students to optimize Number Theoretic Transforms (NTT) and Inverse NTT on the B1K Instruction Set Architecture, enhancing processor efficiency for Full Homomorphic Encryption; research paper in progress

NYU Center for K-12 STEM Education, New York | **Graduate Adjunct**   06/2024 – 08/2024
- Instructed and mentored 75 K-12 students in a curriculum focused on Machine Learning fundamentals and Deep Learning, with hands-on projects in Scikit-Learn, TensorFlow, and PyTorch
- Facilitated interactive learning experiences, earning exceptional feedback from students and the NYU Center

Oracle Financial Services Software, Mumbai | **DevOps Engineer II**   09/2022 – 06/2023
- Led a team in the development of a transformer model (BERT) designed to analyze user comment data and identify bugs
- Developed a novel customer origination tool, resulting in a 75% speedup - reduction of a 2-hour task to just 0.5 hours
- Implemented a caching logic that optimized the performance of all scripts, resulting in 15-minute execution time reduction
- Initiated the refactoring of Linux-based Bash scripts to OS-independent Python scripts for performance improvement in the development pipeline
- Trained five recruits by conducting knowledge-sharing sessions on an overview of the codebase and the proprietary tools and technologies being used in the project
- Consistently acknowledged as a top performer thrice, with recognition from peers and clients for exemplary work

Oracle Financial Services Software, Mumbai | **DevOps Engineer I**   10/2020 – 09/2022
- Implemented a concurrency algorithm for the execution of test cases and stress-tested our servers with more than 200 sessions at a time, achieving an exceptional 72 hours reduction in the total testing time of 471 test cases
- Streamlined execution workflow, reducing 30% waiting time by improving the queuing logic to handle execution priorities and resource interdependencies
- Designed an efficient algorithm by implementing a concurrency logic to transfer files over the network, thereby improving the speed of database backups by 50%
- Created scripts for database installation, configuration, and cloning, resulting in 80% fewer time delays and reducing the dependency on the database team

SKILLS

Programming Languages: Python, C/C++, Shell Script, Expect Script, Java, SQL, HTML, CSS, Javascript, MATLAB
Frameworks: PyTorch, CUDA, TensorFlow, Keras, Linux, Git, Jenkins, Oracle Database, Oracle Cloud, AWS, Docker

PROJECTS

Multimodal Sentiment Analysis using Transformers
- Researched multimodal fusion techniques to amalgamate audio, text, and video data for improved sentiment analysis performance.
- Achieved 75% accuracy on CMU-MOSI and CMU-MOSEI datasets using Early Fusion Transformers, and Multimodal Transformer models and experimented with innovative approaches such as Tensor Fusion Model.

Continual Learning for Autonomous Vehicles
- Developed Continual Machine Learning models, focused on real-time prediction of steering angles using image data.
- Explored strategies such as Elastic Weight Consolidation, and Experience Replay and researched a novel approach – Temporal Consistency Regularization for autonomous vehicle navigation.

Optimizing Vision Transformers (ViTs)
- Conducted performance analysis of ViTs using Torch Profiler to identify bottlenecks and optimize execution
- Utilized Flash Attention to enhance the computational efficiency and reduce memory usage of ViT models by 20%