

Aditya Vasudevan

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EDUCATION

- University of Michigan** Ann Arbor, Michigan, USA
Master of Science (M.S.) in Computer Science Aug 2022 - Present
GPA: 4.0/4.0
Expected Graduation in May 2024.
- Birla Institute of Technology & Science, Pilani** Pilani, India
Bachelor of Engineering (B.E.) in Computer Science, Minor in Data Science Aug 2017 - Jul 2021
CGPA: 9.82/10
Rank 6 out of over 1000 students in the batch of 2021.

EXPERIENCE

- Nutanix Technologies USA** Remote
Hybrid Cloud Data Engineer Intern May 2023 - Aug 2023
 - Set up the data pipeline back-end to allow for Nutanix Data Lens (NDL) to operate on S3 storage.
 - Created an anomaly detection module using statistical tools to detect and flag anomalous user behavior in a file system.
 - Engineered a more optimal method of processing and transferring S3 inventory data from S3 to Snowflake for NDL.
- Nutanix Technologies India** Remote
Member of Technical Staff-1 Jul 2021 - Jul 2022
 - Designed and Implemented the Upgrade framework for schema-level database objects.
 - Designed and Implemented the Infrastructure to integrate a third-party storage provider in the existing analytics platform.
 - Built scripts to automate and optimise the existing mechanism for displaying data on the dashboard.
- Nutanix Technologies India** Remote
Internship Jan 2021 - Jun 2021
 - Implemented various modules in a cloud-based Data Analytics platform for the storage service.
 - Set up the basic infrastructure on the cloud database service through creation of SQL stored procedures and tasks.
 - Created and deployed a lambda for enabling automated password rotation of database users.
 - Created the procedure to detect potential ransomware threats and send email notifications to users
 - Created the module that uses scan data to generate file paths for all directories in the system efficiently through SQL queries, and update the paths based on incoming events. (Patent pending)

PROJECTS

- Prediction Uncertainty Modelling for Long Distance 3D object detection** Gatik AI
TechLab@MCity 2023 Jan 2021-Present
 - Working on the problem of object detection at distances of over 150m for autonomous vehicles.
 - Attempting to improve the performance of models through realistic prediction uncertainty modelling
 - Using Mixture Density Networks with hand-crafted loss functions to train models to predict uncertainty.
- Get Away with Reinforcement Learning** Dr. Lu Wang
Course Project (Foundations of AI) Aug 2022 - Dec 2022
 - Created a RL agent to play the card game Get Away
 - Adapted an existing RLCard framework to implement the training and testing modules.
 - Analyzed the results of different RL algorithms used to train the agent.
- Development of a de novo Genome Assembly Algorithm** Dr. Poonam Goyal
Laboratory Oriented Project Jan 2020 - Dec 2020
 - Refactored the C codebase into logically independent modules.
 - Improved efficiency and parallelism of the module by removing redundant code and static functions.
 - Built utilities to compute features like Generalised Genome Signatures, from DNA segments and perform paired-end matching.
 - Implemented a new sequence vector data structure to aid in the creation and extension of contigs.
- Team AcYut** Dr. B.K Rout
Student Technical Team Oct 2017 - Apr 2020
 - Led a team of 6 students designing an autonomous soccer-playing humanoid robot.
 - Implemented a Genetic Algorithm (GA) to optimise parameters for the robot walk.
 - Designed the model for a new robot body with fewer motors, whilst maintaining the degrees of freedom.
 - Oversaw the training of new team members during the 4 month probation period.

- **REST-based service for MapReduce and Spark jobs** Dr. Hari Babu
Course Project (Cloud Computing) Sep 2020 - Oct 2020
 - Developed a REST-based data service for processing a data set of 500,000 Amazon product details.
 - Designed a Tkinter GUI for creating and posting SQL-like queries on the dataset.
 - Implemented the API-backend to retrieve the queried data using Hadoop MapReduce and Apache Spark.
 - Performed temporal analysis of the data service, comparing the two frameworks.
- **Distributed Storage System Design** Dr. Hari Babu
Course Project (Cloud Computing) Oct 2020 - Nov 2020
 - Designed a distributed database system which maintains 2 copies and achieves eventually consistency through read-repair.
 - Implemented the CRUSH hash function to partition the data.
 - Used Zookeeper to support and update primary and secondary instances.
- **Improved Techniques for Training GANs** Dr. Surekha Bhanot
Course Project (Neural Networks and Fuzzy Logic) Nov 2020 - Dec 2020
 - Implemented feature matching, minibatch discrimination, historical batch averaging and virtual batch normalization to improve the performance of GANs on common datasets.
 - Adapted an existing implementation of the GAN from Lasagna-Theano framework to PyTorch.
 - Achieved an accuracy of 95.5% on a the MNIST test dataset.
- **Artificial Neural Network from Scratch** Dr. Navneet Goyal
Course Project (Machine Learning) Oct 2019 - Nov 2019
 - Created a Neural Network from first principles in Java.
 - Generalized the code to customize the number of hidden layers and nodes per layer.
 - Compared the accuracy of different activation functions and variants of Gradient Descent on a simple classification task.
- **Climate Data Analysis Package** Dr. Rohit Srivastava
Summer Project, National Center for Polar and Ocean Research, Goa May 2019 - Jul 2019
 - Created a Python package to read and process data in climate data files like NetCDF files.
 - Designed a GUI and visualiser to view the file data on a map and plot graphs varying time and location.
- **Picross Solver**
Personal Project May 2021
 - Created a heuristically guided solver for Picross puzzle.
 - Implemented k-means clustering to identify numbers and populate the solver from a screenshot of the puzzle.
 - Automated the process to iterate through all puzzles and solve them using Android Debug Bridge.
- **Google HashCode 2021 Simulator**
Personal Project Feb 2021 - Mar 2021
 - Created a simulator to generate solutions for competition Google HashCode 2021 in Python.
 - Implemented a Particle Swarm Optimiser to learn an optimal solution to the problem.

SKILLS

- **Programming Languages:** Python, C/C++, JavaScript, SQL, Java, GoLang, MATLAB
- **Python Tools and Frameworks:** NumPy, Pandas, Matplotlib, PyTorch, Scikit, NLTK, TensorFlow, Keras, Flask, adb
- **Other Tools and Frameworks:** Git, Kubernetes, Docker, JIRA, Gerrit, Hadoop MapReduce, Apache Spark, Zookeeper
- **Cloud-based:** S3, Lambda, Batch jobs, Secrets Manager, Snowflake

COURSES

- **Core CS Courses:** Object Oriented Programming, Data Structures & Algorithms, Database Systems, Theory of Computation, Operating Systems, Computer Architecture, Computer Networks, Compiler Construction, Design & Analysis of Algorithms
- **Data Science Courses:** Machine Learning, Foundations of Data Science, Applied Statistical Methods, Applied Stochastic Processes, Information Retrieval, Neural Networks and Fuzzy Logic
- **Elective Courses:** Cryptography, Cloud Computing, Discrete Math Structures
- **MOOCs:** Deep Learning Specialization (Coursera), Python for Everybody Specialization (Coursera), Go Essential Training (LinkedIn Learning), Git Essential Training (LinkedIn Learning)
- **Graduate Courses:** Randomness and Computation, Foundations of AI, Advanced Compilers, ML Theory, Parallel Computing, Advanced Cryptography, Computational Complexity