Amutheezan Sivagnanam

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U.S. Permanent Resident | Scholar | https://www.linkedin.com/in/amutheezansivagnanam | Github | **Open to relocation**

SUMMARY

Software Engineer with expertise in **machine learning**, **optimization**, and **operational research**. Skilled in building and deploying **ML systems**, scaling **training pipelines**, and **optimizing inference performance**. Strong track record of converting research **prototypes** into robust, **production-grade** solutions.

TECHNICAL SKILLS

- **Programming Languages:** Python,C, C++, Java, C, JavaScript
- **Databases:** Oracle DB, MySQL, MongoDB, SQLite
- **Software Development & Practices:** Object-Oriented, Agile Practices, Behavior Driven Development (BDD), Git
- **Cloud & Distributed Systems:** AWS (SageMaker, S3, Lambda), Docker, Slurm, Linux
- **Data Analytics & Visualization:** NumPy, pandas, matplotlib, Spark
- **Machine Learning & AI:** PyTorch, TensorFlow, Scikit-learn, Transformers,
- **Optimization:** LP, MILP, CPLEX, Gurobi, Mosek, OR-Tools

EDUCATION

Ph.D. Informatics (August 2025): **Pennsylvania State University**, University Park, PA
M.S. Computer Science, (August 2022): **University of Houston**, Houston, TX
B.S. Computer Science and Engineering, (January 2018): **University of Moratuwa**, Moratuwa, Sri Lanka

EXPERIENCE

Graduate Research Assistant – Penn State University
Aug 2022 – May 2025

- Implemented an **insertion heuristic** for a dynamic routing system, **integrated** into the transit application platform to **enhance** real-time vehicle routing
- Identify the limitation in the state-of-the-art approaches with respect to implementation, and perform necessary **reorganization** (i.e., de-coupling components) and **optimization** to speed-up the computation

Graduate Research Assistant – University of Houston
Sep 2019 – Aug 2022

- Deployed an **energy-aware** scheduling algorithm into public transit operation, reducing energy costs and minimizing environmental emissions
- Implemented **automated** data-collection and cleaning framework to efficiently collect chromium vulnerability data from multiple data sources and compose into comprehensive dataset

Software Engineer – LSEG Technology
Jan 2018 – Jul 2019

- Developed and maintained application software using **Java, Python, and C++** with **Object-Oriented principles**, implementing Agile practices (Scrum) to improve team productivity, system performance, and scalability
- Designed and executed **unit testing** and **BDD-based tests** ensuring system reliability, regression compatibility, and enhanced test coverage
- Automated reporting, managed **database** and **back-end integrations**, and contributed to front-end development and deployment plans, streamlining operations, minimizing downtime, and improving overall system efficiency

Software Engineering Intern – WSO2
Jul 2016 – Dec 2016

- Built outbreak alert system **analyzing** HL7/FHIR hospital data, supporting real-time public health monitoring
- Developed interactive dashboards (**JavaScript, jQuery, Leaflet.js**) with **geospatial** and **temporal** visualizations, supporting decision-making through data analytic