VINAY SAJI MATHEW

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EDUCATION

The Pennsylvania State University, Master of Science in Industrial Engineering – **GPA: 4.0** *May 2024*

Relevant Coursework: Analytics, Network Science, Supply Chain Engineering, Design of Experiments

College of Engineering Trivandrum, Bachelor of Technology in Industrial Engineering *May 2020*

Relevant Coursework: Operations Research, System Simulation, Operations Management, Supply Chain Management, Layout Planning, Enterprise Resource Planning, Meta-heuristics

TECHNICAL SKILLS

• JAVA, C++ • Python, R • Business Analysis • Advanced Excel

ENGINERING EXPERIENCE

Systems Engineer, **Tata Consultancy Services** – Bangalore, Karnataka, India. *Oct 2020 to Aug 2022*

- Led the implementation of custom-made software for an automotive client to optimize allocation and scheduling of engineers, workers, and machines. This included adding features to layer of custom-made software being used to run over existing tools provided by IBM to better suit organization's needs.
- Worked on optimization and diagnostics within several components of product, which resulted in 17% improvement in software systems architecture. Utilized tools such as Java, IBM Cloud & Smarter Infrastructure (previously Tivoli), C++, Rhapsody, and Jenkins to support the project.

Project Intern, Indian Railways - Thiruvananthapuram, Kerala, India *Dec 2019 to Mar 2020*

- Developed and implemented a mathematical model and simulation for an optimization problem, incorporating various constraints such as number of shunting yards, vehicles, yard capacity, and workers, using tools such as Simio (by Simio LLC), C++ (with the CPLEX library from IBM), and Python, resulting in outstanding grade for research skills and innovation.

Research Intern, Indian Institute of Technology Guwahati - Guwahati, Assam *June 2019 to July 2019*

- Automated the timetable scheduling of a university by developing a scheduling model using C language and writing a research paper on "University Timetable Scheduling using a Population Alteration Model" under the supervision of Professor Swarup Bag.

PROJECTS & GRADUATE DUTIES

Graduate Assistant – The Harold and Inge Marcus Department of Industrial Engineering *Jan 2023 to Present*

- Natural Language Processing and semantic embedding researcher in the Laboratory for Intelligent Systems and Analytics.
- Teaching Assistant for Engineering Analytics. Responsibilities including developing coursework, assisting students with writing code in Python, and holding office hours.

The Healthy Veggie – Graduate Project *Aug 2022- Dec 2022*

- Developed and recommended a comprehensive business and logistics plan for "The Healthy Veggie" to enter the customer-direct sales market of fresh vegetables in the Greater Dallas area, including market analysis, supply chain strategy, warehouse, inventory optimization, and last-mile delivery design.

Predicting Food Insecurity using Machine Learning and Health/Geographical Metrics – Graduate Project

- Developed and implemented a machine learning model using multivariable linear regression, random forests, and logistic regression to predict food insecurity rates and levels with up to 90% accuracy and mapped the relationship between food insecurity and various chronic diseases across counties in the US.

Magnetic, Gravitational and Frictional Forces on Iron Cube Velocity – Design of Experiments (DOE) Project

- Conducted a Design of Experiments (DOE) project to evaluate the impact of various forces such as friction, inclination, magnetism, path, and temperature on the speed of a ferromagnetic object in space.