Portfolio – Oviya Arunachalam

(Kindy let me know if there is any doubt through the process, I'll see how to add things)

About

Hello! I'm **Oviya Arunachalam**, an aspiring Data, Operations, and Business Analyst. I enjoy working with data to uncover patterns and deliver actionable insights; after all, *numbers speak louder than words*. With a blend of technical skills and an operations mindset, I'm passionate about turning data into strategies that drive efficiency and impact.

Education

BE Robotics and Automation Engineering – PSG College of Technology, Coimbatore, India (graduated in July 2024)

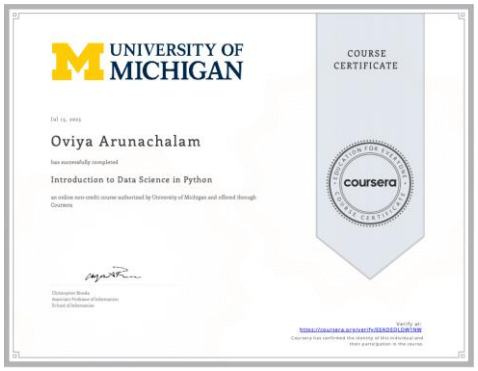
MS Industrial and Operations Engineering – University of Michigan, Ann Arbor (expected to graduate in December 2025)

Skills

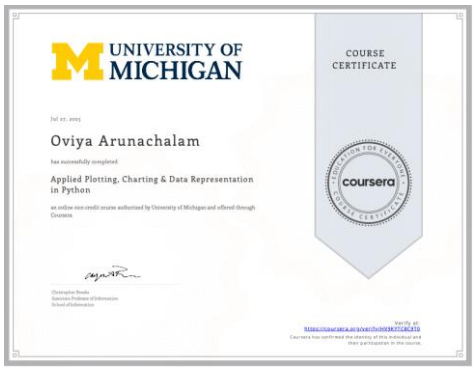
- Programming Languages: SQL, Python, R, familiar with HTML
- Libraries & Packages: Pandas, NumPy, scikit-learn, Matplotlib, Seaborn, TensorFlow, PyTorch
- Tools & Platforms: Jupyter, Visual Studio, PyCharm, Google Colab, phpMyAdmin, Excel, Anaconda, familiar with Tableau
- Data Management & Engineering: Advanced Joins, Aggregate Functions, Data Extraction, ETL, Data Automation
- Statistical Analysis: Regression Analysis, Hypothesis Testing, KPI Measurement
- Analytics & Visualization: Data Analysis, Data Visualization, Dashboard Building

Certifications

- Introduction to Data Science in Python



- Applied Plotting, Charting & Data Representation in Python



- Applied Machine Learning in Python

- Introduction to Structured Query Language

Experience

- Programmer Analyst – Rackham Graduate School, Institutional Research
    - Worked on database management and process automation projects, focusing on syncing and cleaning academic records across multiple MySQL databases.
    - Developed SQL triggers, stored procedures, and automated pipelines to enable seamless data updates and integrity checks.
    - Implemented data automation solutions that minimized manual work, improved accuracy, and streamlined student record management processes.

- Logistics Planning Intern – Hatsun Agro Products
    - Trained on SAP-LE to execute logistics processes, including bill of order generation and goods delivery planning.
    - Optimized routing and scheduling for distribution, ensuring efficient resource utilization and on-time delivery.
    - Gained hands-on experience in ERP-driven logistics and supply chain operations within a large-scale FMCG environment.

Projects (Please highlight the numerical values of the data)

- Cart Flow Optimization – Ford VanDyke Powertrain Center

  Optimized material handling efficiency by analyzing cart flow across the shop floor. Applied discrete-event simulation, value-stream mapping, time-studies and Pareto analysis to identify bottlenecks and redesign cart routes. Delivered a **15% reduction in non-value-added time** and improved throughput, supporting lean manufacturing initiatives in EV powertrain production.

- Business Model Development (NYC LL97 Compliance) - ThermoVerse

  Developed a scalable market strategy for an energy optimization platform helping NYC buildings comply with LL97 emission regulations. Designed borough-specific pricing, segmentation, and financing strategies (PACE integration) to maximize adoption. Conducted financial modeling that projected a **net profit of $2.40/sq.ft./year**, outperforming traditional compliance models and creating a hybrid business plan with strong ROI potential.

- Optimizing Telemarketing Strategies: Customer Conversion Prediction for Insurance Sales

  Built a predictive analytics model to identify key drivers of customer response in telemarketing campaigns using 56k+ records. Applied data cleaning, feature engineering, and class imbalance handling (SMOTEEN) to improve model reliability. Delivered a model that **increased conversion prediction accuracy by 18%**, enabling more targeted outreach and improved customer acquisition efficiency.

- Predictive Maintenance in Manufacturing using IIoT Integration

  Built an IIoT-driven monitoring pipeline by developing machine learning algorithms for CNC machinery with real-time anomaly detection. Designed a live dashboard that flagged equipment health issues and, when fault indicators crossed a defined threshold, automatically emailed the shop-floor manager to schedule maintenance, reducing reactive fixes and supporting planned interventions.

- Stock Prediction using AI

  Developed an LSTM-based deep learning model to forecast stock price trends using open-source Apple stock data. Implemented data preprocessing, feature engineering, and sequential modeling to capture temporal patterns. Achieved a **forecasting accuracy improvement of 12%** over baseline methods, supporting data-driven financial decision-making.

Publications (Add a link to access the PDF document of the article)

- Leveraging the benefits of digital twin in delivering personalized medicine using IOT

  Published research exploring how digital twin technology, integrated with IoT, can enable real-time patient monitoring and tailored treatment plans. Highlighted the potential of virtual replicas to improve healthcare outcomes by simulating patient-specific scenarios for more precise and personalized medicine.

- Control and autonomy of microbots

  Published research focused on the control mechanisms and autonomous navigation of microbots for precision applications. Explored algorithmic approaches to enhance mobility, decision-making, and adaptability, highlighting the potential of micro-scale robotics in advancing biomedical and engineering solutions.

Leadership & Service

- Secretary and Joint Secretary of the Financial Club (Finverse) at PSG College of Technology (2022-2024).
- Administration head of Animal Welfare Club at PSG College of Technology (2022-2023).
- Senior executive of social media and publicity domain of Women Development Cell at PSG College of Technology (2022-2023).
- Certified by the Panchayat for 60 hours of social service regarding women health and sanitation, and children education.

Contact

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