# Rahul Pavithran

(646) 249-0348 | Jersey City, NJ | rahul.pavi@outlook.com | linkedin.com/in/rahulpavithranglobal | alpha2303.github.io

## Education

**Master of Science, Computer Science** — Jan 2023 – May 2024
*New Jersey Institute of Technology (GPA: 4.00 / 4.00)* — *Newark, NJ, USA*

- **Relevant Coursework:** Data Structures and Algorithms | Database Management System Design | Image Processing and Analysis | Machine Learning | Artificial Intelligence | Operating System Design | Cloud Computing | Applied Statistics

**Bachelor of Technology, Computer Science and Engineering** — Aug 2016 – Jun 2020
*Anurag Group of Institutions (CGPA: 9.46 / 10.00)* — *Hyderabad, TG, IN*

## Skills

**Programming Languages**: Python, JavaScript, TypeScript, HTML & CSS, Golang, SQL, C++, C#, Solidity, PHP
**Databases**: RDBMS - PostgreSQL, MySQL, MariaDB, AirTable | NoSQL - MongoDB, DynamoDB
**Frameworks & Libraries**: Flask, CKAN, SQLAlchemy, GeoAlchemy2, boto3, ortools, NumPy, Pandas, Matplotlib, Scikit-Learn, PyTorch, Keras, TensorFlow, OpenCV, Tesseract, React, Angular, jQuery, Express.js, Node.js, Web3.js, sequelize, Bootstrap, ASP.NET, Magento2
**OS & Cloud**: Linux, Docker, Kubernetes, Helm | AWS - S3, Lambda, API Gateway, EC2, Elastic Beanstalk, Cloudfront, | Azure - AKS, Datalake
**Tools**: DevOps - CI/CD, GitHub Actions, Azure DevOps, Jira, Confluence | Version Control - GitHub, Gitlab, Bitbucket

## Experience

**NJIT Ying Wu College of Computing** — Jan 2024 – May 2024
*Graduate Tutor, Algorithms and Machine Learning* — *Newark, NJ, USA*

- Selected as one of five tutors college-wide to assist students with Data Structures, Algorithms, and Machine Learning fundamentals
- Organized and facilitated online and in-person academic guidance sessions on ML workflows, boosting student engagement by 30%

**ValueLabs** — Jun 2022 – Jan 2023
*Senior Software Engineer* — *Hyderabad, TG, IN*

- Engineered critical full stack solutions for a PHP/Magento2-based e-commerce platform, enhancing customer checkout rates by 17%
- Developed Flask REST APIs and Python data migration scripts for an AI-driven RFT annotation portal on AWS, automating the transfer of NLP-generated annotations from AirTable to MongoDB on the portal backend, resulting in a 28% increase in operational efficiency
- **Awards**: ValueLabs Spot Award - Jun 2022

**ValueLabs** — Jun 2020 – Apr 2022
*Software Engineer* — *Hyderabad, TG, IN*

- Led the development of Python CKAN-based data management portal on Azure Kubernetes, collaborating with software architects and stakeholders to improve system stability, integrate diverse data sources and add support features, restoring project profitability
- Optimized Azure Kubernetes deployment by spearheading the transition from a specialized multi-cluster architecture to a generalized single-cluster layout via reconstructed Helm charts, maintaining system performance while reducing resource expenditure by 48%
- Partnered with cross-functional teams to compose a robust Ethereum smart contract, scalable Express.js REST APIs and CLI controller for a Blockchain STO portal on Elastic Beanstalk, upholding European securities regulations and doubling token control accessibility
- Delivered multiple Python-based solutions for scanned page grouping and format-independent data extraction from Swedish PDF documents, leveraging Tesseract OCR engine with a custom fine-tuned LSTM backend, leading to 22% reduction in digitization costs
- **Awards**: ValueLabs Star of the Month - Mar 2022 | Superstar of the Quarter - Jan 2022, Dec 2020

**ValueLabs** — Dec 2019 – Mar 2020
*Intern* — *Hyderabad, TG, IN*

- Co-produced an ASP.NET based e-commerce web application on MVC architecture, incorporating jQuery AJAX and KnockoutJS in conjugation with Entity framework to facilitate server-side Pagination, achieving fast and dynamic store list retrieval and rendering
- Composed production-ready unit tests for feature additions on ASP.NET MVC project utilizing xUnit testing framework and drawing on the advantages of Dependency Injection from SOLID principles to reduce development load and improving test coverage by 5%

**SmartBridge** — Mar 2019 – Jun 2019
*Machine Learning Engineer - Intern* — *Hyderabad, TG, IN*

- Mentored more than 150 students from various universities across the city in the fundamentals of Machine Learning, Exploratory Data Analysis and Data Visualization, employing industry-standard Python libraries such as NumPy, Pandas, Matplotlib and Scikit-learn

## Projects

**LSTM-based Time-Series Modelling for SEP Event Prediction** | *Python, NumPy, Pandas, Matplotlib, Scikit-learn, PyTorch, Jupyter*

- Formulated multiple PyTorch based deep learning models based on LSTM network architecture to predict solar energetic particle (SEP) events, trained on sequential data prepared from NOAA GOES sensor readings while minimizing impact of heavy class imbalance
- Crafted Ivy, a Python module for managing ML model training instances and evaluation plot generation, integrating essential workflow features including early stopping and model checkpoint saves, thus reducing project asset management and execution efforts by 58%

**Real-time Traffic Detection** | *Python, NumPy, Matplotlib, PyTorch, Jupyter*

- Proposed and analyzed the use of neural network implementations based on YOLOv5 and YOLOv8 model architectures for complex traffic detection of diverse road entities from visual feed, attaining $>$80% detection accuracy under various environmental conditions
- Presented research paper at 2024 IEEE International Conference on Advanced Systems and Emergent Technologies (IC_ASET 2024)

**Pass-Man** | *Golang, crypto*

- Constructed a terminal-based password manager in Golang, providing CRUD operations on domain-oriented password profiles with support for multiple password vaults, saved on local file-based storage and secured with AES-256 GCM encryption algorithm sequence