SWATHI THIRUVENGADAM

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SUMMARY

Results-driven AI professional with 3+ years of experience in Machine Learning, Deep Learning, and Data Science, with 2 years of full-stack Web development experience. Proficient in Python, PyTorch, TensorFlow, Git, Docker, and Azure, with expertise in NLP (LLMs, GPT-3/4, Llama), Computer Vision, and end-to-end DL pipelines. Demonstrated leadership as a Scrum Master and a track record of delivering high-impact solutions. M.S. graduate in Computer Science (AI specialization) from the University of Freiburg, seeking a full-time AI development role to solve industrial challenges.

EXPERIENCE

Scientific research assistant Fraunhofer ISE 🔗

📅 Jan 2024 – Present   📍 Freiburg, Germany

- Developed and fine-tuned transformer-based models for tabular data extraction from PV module datasheets, boosting data extraction accuracy by 15%.
- Implemented an advanced canonicalization algorithm, performed Hyperparameter Optimization, integrated LLMs(GPT-4), and applied NLP post-processing to handle tables with complex structures and varying layouts to cut down data processing time by 40%.
- Clean code with unit test and containerized the solution using Docker to ensure reproducibility.

Intern - Deep Learning Fraunhofer ISE 🔗

📅 Aug 2023 – Jan 2024   📍 Freiburg, Germany

- Trained advanced DL-based object detection models for Table Detection and Table Structure Recognition using PyTorch and OpenCV, improving data extraction quality by 12% over the baseline approach.
- Prepared a custom PV dataset by collecting, annotating, and augmenting PV Datasheets followed by advanced pre-processing of extracted images to enable efficient model training.

Teaching Assistant - Database and Information Systems Albert-Ludwigs-Universität Freiburg 🔗

📅 Sep 2022 – Mar 2023   📍 Freiburg, Germany

- Devised and delivered engaging sessions weekly on SQL programming, relational algebra and database design, raising average student grades by 15%.
- Mentored 50+ students on data modeling and query optimization, through individualized feedback, and hands-on problem-solving.

Systems Engineer - IFS Tata Consultancy Services 🔗

📅 May 2020 – Mar 2021   📍 Bangalore, India

- Led a team of 4 to deploy an automated multi-tier collaboration app using Microsoft PowerApps, Power Automate, Azure and Power BI increasing supply chain productivity by 200%.
- Served as SCRUM master, ensured agile methodologies, and integrated CI/CD pipelines using Azure DevOps to reduce the sprint turnaround by 10%.

EDUCATION

Masters in Computer Science (AI specialization)
University of Freiburg | Grade 2.3

📅 Apr 2021 – Mar 2025

Thesis - Recognition of complex table structures and extraction of tabular data from PV module datasheets using DL

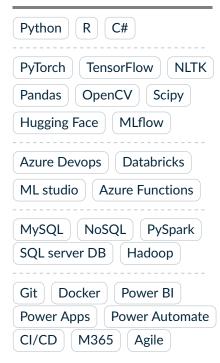### Bachelors in Computer Science **Vellore Institute of Technology | Grade 7.83**

📅 Jun 2015 – Mar 2019

Thesis - Trend Analyzer: A Machine Learning Approach to Predict Twitter Trends

CERTIFICATIONS

- Microsoft Certified: Azure AI Fundamentals
- Microsoft Certified: Azure AI Engineer Associate

SKILLS

Python   R   C#

PyTorch   TensorFlow   NLTK
Pandas   OpenCV   Scipy
Hugging Face   MLflow

Azure Devops   Databricks
ML studio   Azure Functions

MySQL   NoSQL   PySpark
SQL server DB   Hadoop

Git   Docker   Power BI
Power Apps   Power Automate
CI/CD   M365   Agile

LANGUAGES

English C2
German A2

- Implemented a multi-cloud comparison and recommendation application to simplify management of Cloud Instances with automated data mining workflow using Azure functions to reduce processing time by 40% and improve the accuracy of recommendations by 15%.
- Generated interactive Power BI dashboards to visualize key insights achieved by streamlining the reporting process using Pyspark and ML algorithms.

Systems Engineer - PWC **Tata Consultancy Services** 🔗

📅 Jun 2019 – Apr 2020   📍 Bangalore, India

- Developed automated solutions with Dotnet MVC for theme transfer, request management, and financial statement generation, leveraging SQL and Python to enable advanced data analysis and visualization of results using Power BI.
- Parsed large volumes of data using Python, Regular Expressions, NLTK, and Aspose APIs to optimize data workflows decreasing manual effort by 90%.
- Collaborated with stakeholders to design an interactive and user-centric website that raised user satisfaction survey scores by 25%.

Software Development Intern **Tata Consultancy Services** 🔗

📅 Jan 2019 – Apr 2019   📍 Bangalore, India

- Built ML-based trend prediction tool with domain-specific trend model using Twitter's Streaming API, Azure ML Studio, and PyTorch, to increase client's social media visibility and anticipate market trends.
- Orchestrated data pipelines with Azure Functions to mine data periodically and Azure Blob Storage to handle 50,000+ trending tweets weekly.

Summer Intern **Infinite Computer Solution** 🔗

📅 Apr 2018 – May 2018   📍 Bangalore, India

- Implemented an Android fitness app that inferred user activity from mobile devices and daily calorie intake to deliver personalized ML-based insights for 100+ beta users.
- Analyzed health risk data using Decision Trees and developed a Python-based recommendation model to advise users on health risks.

Intern Trainee **Virtusa Consulting Services** 🔗

📅 Jun 2017 – Jun 2017   📍 Bangalore, India

- Contributed to GST implementation for a major retail bank, by actively supporting the team in processing raw data using SQL for data migration and creating QA test cases (JIRA).

PROJECTS

Hand Gesture Interpretation

- Developed a Computer Vision tool using OpenCV and PyTorch to recognize 20+ gestures with 90% accuracy, enhancing accessibility.
- Integrated real-time image capture via the AForge DotNet framework, accelerating frame processing by 15%.

Hairline Fracture Detection

- Implemented an image classification pipeline using TensorFlow and OpenCV techniques to detect hairline fractures with 85% accuracy.
- Optimized hyperparameters to improve precision by 8%, addressing class imbalance through data augmentation and advanced data pre-processing pipeline.

ACHIEVEMENTS

- Awarded the Beyond Performance Award at TCS Digital Confluence - 2019 for leading the adoption of Agile workflow as SCRUM Master, implementing Azure DevOps boards and pipelines which accelerated project completion.

COMPETENCIES

- Deep Learning (DL)
- Image processing and Computer Vision (CV)
- Natural Language Processing (NLP)
- Large Language Models (LLM)
- Machine Learning (ML)
- Artificial Intelligence (AI)
- Data Analysis and Validation
- Agile methodologies

STRENGTHS

Commitment   Problem solving
Teamwork   Continuous learning
Time management   Leadership
Communication