



Gender: Male
Nationality: Indian

CONTACT

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EDUCATION

2024-Present

TECHNICAL UNIVERSITY OF MUNICH

- Master in Computational Science and Engineering
- Coursework: Deep learning, Machine learning, Parallel programming, and Visual data analytics

2018-2022

AMRITA VISHWA VIDYAPEETHAM

- Bachelor in Mechanical Engineering
- CGPA: 9.3/10
- Relevant Coursework: FEM, Mechatronics, CFD, Thermal engineering, and Thermodynamics

TECHNICAL SKILLS

- Simulation tools- ANSYS Workbench, Fluent
- Programming skills- C++, MATLAB, Python(Pytorch, numpy, pandas, Sci-kit, matplotlib), Latex
- Visualization tools- Tabaleau, Viz3D, Excel
- Design and PLM tools- Catia, Fusion 360, Creo, Teamcenter
- Management tools- JIRA, sharepoint, SQL, Fabric, Confluence
- other tools - n8n, Dataiku

LANGUAGES

- English (C1)
- Tamil (Native)
- German (B2)

SUDHARSHAN RAM JAYARAMAN

COMPUTATIONAL SCIENCE AND ENGINEERING STUDENT

PROFILE

Motivated Master's student in Computational Science and Engineering at the Technical University of Munich with a strong foundation in Data driven analysis, Visualization techniques, Machine learning and numerical modeling. Experienced in numerical data analysis, 3D-CAD modeling, prototyping, and MATLAB-based simulations.

WORK EXPERIENCE

- **Hilti Entwicklungsgesellschaft GmbH** 2025-Present
Working student - Data Analyst
 - Consolidated NFC-enabled burnt battery data, sensor data, and collected electronic logs into an **SQL database**, integrating it with Microsoft Fabric. Used Pandas and NumPy for **data cleaning, preprocessing**, and transformation, and applied **DBSCAN** clustering to identify voltage anomalies.
 - Conducted **Pearson correlation** analysis and utilized Scikit-learn to develop predictive models for maintenance insights. Streamlined processing with automated Excel macros and optimized workflows via Jira (Kanban) and Microsoft Fabric.
- **Tata Technologies** 2022-2023
Design Engineer
 - Graphical representation of bench marked data of caliper and disc for EX30 model.
 - Hands-on experience with **Agile methodology** in significant projects like Volvo XC90, XC60 and EX30.
 - Recognized for significant contributions to **Pad Wear Indicator (PWI)** project, leading to an **18% profit** increase.

PROJECTS

- **Machine learning in crowd Modelling - Semester project in Machine learning**
Integrated machine learning and dynamical systems for simulating crowd behavior using Vadere, extended with epidemiological (SIR) dynamics. Applied ML principles such as **dimensionality reduction** (PCA, Diffusion Maps), **latent-space modeling** (VAEs), and **data-driven dynamical system** reconstruction through function approximation and **time-delay embedding** to analyze and visualize emergent crowd motion, with version control and collaboration managed via GitHub.
- **Visual data analysis of sales trend in US market - Semester project in visual data analytics**
Understanding sales trend in US with visual representation. Effect of visual channels in human perception is analyzed. Clustering, trend line and degree of perception were important parameter of study. Dashboard involving multiple plots and geographical represented along with filters in region, period were presented in tableau.
- **Parallel CFD Solver Development – Semester Project in Scientific Computing**
Developed a 2D CFD solver from scratch to simulate fluid dynamics using Navier-Stokes equations and understanding the software development cycle. Implemented numerical schemes on a staggered grid using finite differences. Parallelization was achieved using **MPI with domain decomposition** and GPU acceleration. Final solution was visualized using ParaView with velocity, pressure, and temperature fields. The project was extended further to **multigrids**, implementing V-cycle and W-cycle with version control via GitHub.
- **Computational aspects of machine learning seminar- Hyperparameter optimization**
Analyzed classical and advanced hyperparameter optimization methods including Grid Search, Random Search, Bayesian Optimization, and Hyperband. Explored computational trade-offs, convergence behavior, and sample efficiency, emphasizing adaptive resource allocation, surrogate modeling, and meta-learning approaches for efficient model tuning.

CERTIFICATIONS

- 100 days of code - Python bootcamp from Udemy
Dataframes, String manipulation, OOPS, Regex, Data cleanup
- Applied Machine learning in Python - Coursera
KNN, Logistic regression, Multiclass classification, Naive Bayes, Random forest
- Prompt Engineering - Coursera
Data Analysis with LLM, Generative AI
- AI Agents in LangGraph(Project) - Coursera
- Spark, Hadoop and snowflake for Data engineering - Coursera