

Manu Somasagar Kamalakar

Machine Learning Researcher / Software Engineer

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Professional Experience

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| 10/2021 – present
Kaiserslautern, Germany | Machine Learning Researcher
<i>Fraunhofer Institute for Industrial Mathematics (ITWM)</i> <ul style="list-style-type: none">Working as a machine learning expert for a prominent European vehicle manufacturer, focusing on cutting-edge ML algorithms and techniques.Built an advanced predictive application to improve maintenance planning, minimize vehicle downtime, and optimize budget allocation through integrated cost analysis and forecasting features.Designed an interactive data analysis tool empowering analysts and auditors with independent analyses and valuable insights through data visualization and analytics techniques.Utilized unsupervised machine learning techniques to create a robust abnormality detection system for billing statements. |
| 01/2020 – 09/2021
Kaiserslautern, Germany | Scientific Student Assistant
<i>Fraunhofer Institute for Industrial Mathematics (ITWM)</i> <ul style="list-style-type: none">Architecture and implementation of AI infrastructure for a Federated Machine Learning IoT use caseMachine Learning pipelines and deployment in Kubernetes |
| 08/2017 – 08/2019
Bengaluru, India | Software Engineer – DevOps
<i>Société Générale Global Solution Centre</i> <ul style="list-style-type: none">Developed a robust application using the Python-Flask framework to efficiently migrate source code from an SVN repository to GitHub, streamlining version control processes and facilitating code collaboration.Played a vital role as a member of the DevOps transformation team, actively coaching project teams about DevOps principles and fostering a culture of continuous integration and continuous deployment.Set up an end-to-end CI-CD pipeline for multiple project teams, leveraging industry best practices and automation techniques to ensure rapid and reliable application delivery. |
| 04/2017 – 08/2017
Bengaluru, India | Young Graduate
<i>Société Générale Global Solution Centre</i> <ul style="list-style-type: none">Employed industry-standard testing tools, including Selenium and UFT (Unified Functional Testing), to automate the testing process, significantly reducing manual effort and ensuring high-quality software releases. |

Education

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| 10/2019 – 09/2021
Kaiserslautern, Germany | Master's in Computer Science
<i>Technical University of Kaiserslautern (RPTU)</i>
Seminar: Photorealistic Fakes with Generative Adversarial Networks |
| 08/2012 – 08/2016
Bengaluru, India | Bachelor of Engineering in Computer Science & Engineering
<i>K.S. Institute of Technology</i>
Grade: 75.24% (Distinction) |

Projects

Federated Learning for Fraud Detection (Master's Thesis)

- Applied federated learning (FL) to identify frauds in the FinTech domain, addressing data availability, security, and privacy challenges.
- Compared various data sampling techniques, aggregation algorithms, and model performance in a federated learning environment, showcasing FL's potential for effective fraud detection while preserving data privacy and security.

Deep Digit Recognition

- Implemented a digit detection system using neural networks in the Keras framework with TensorFlow backend and OpenCV.
- Utilized the MSER algorithm and CNN classifier to detect digits from natural scene images, enhancing accuracy with the CLAHE technique applied to the dataset.

Applied Data Science on COVID-19 Data with SIR Simulations

- Developed an interactive UI providing comprehensive COVID-19 statistics, growth, recovery, and death information.
- Implemented a sophisticated prediction model for estimating COVID-19 cases in the next week for selected countries, aiding informed decision-making and public health planning.

A Data Mapping Strategy for Parallel Data Mining Nodes in Grid Connected to a Storage Cloud

- Created an efficient architecture to reduce data processing computation time through task distribution across multiple systems using a map-reduce mechanism.
- Developed a private storage cloud from scratch to ensure data availability and optimize system performance and reliability.

Technical Skills

- Machine Learning: PyTorch, TensorFlow, scikit-learn, NumPy, Pandas
- Development Tools & Platforms: Anaconda, PyCharm, Eclipse, Android Studio, Visual Studio
- DevOps: Git, Jenkins, Nexus, Ansible, Docker
- Databases: MySQL
- Operating Systems: Linux, Ubuntu, Windows
- Others: Python, Deep Learning, Research

Certifications and Conferences

- Attended the International Conference on Machine Learning in 2023.
- Oracle Certified Professional, Java SE 6 Programmer.
- Achieved an IELTS score of Band 7.
- Participated in the All India DevOps Conference conducted by the DevOps Institute.
- Proposed a topic titled "Marrying Machine Learning with DevOps" for Agile-day 2019 in Washington DC.

Interpersonal Skills

- I have collaborated effectively with cross-functional teams and stakeholders as a DevOps engineer, ensuring smooth project execution, which improved my communication skills.
- I like to set and meet deadlines, ensuring timely project completion and delivery.
- I enjoy establishing both immediate and future goals, diligently striving to accomplish them to promote project triumph.

References

Dr. Stefanie Grimm, *Research Coordinator - Data Science, Fraunhofer ITWM*
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Nivarti Jayaram, *Chief Data Officer, Societe Generale Global Solution Centre*