# Satyam Mittal

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## Work Experience - 4+ years

**Ascentt - Toyota Motors** <div align="right">Plano- Texas, USA</div>
**Senior AI Engineer** <div align="right">July 2024 - Present</div>
- Developed GenAI-based RAG frameworks for Toyota's global manufacturing, processing 1TB+ unstructured data for real-time query resolution.
- Utilized NLP, Opensearch,, and LangChain to optimize runtime bug fixes, reducing manufacturing downtime by 10%.
- Implemented CI/CD pipelines and core framework to streamline data ingestion for all AI based applications.

**Pre-Fab Innovations, Inc** <div align="right">California, USA</div>
Machine Learning Software Engineer <div align="right">Jan 2024 - July-2024</div>
- Led the fine-tuning of multi-modality Layout-LLM models using PeFT methods in PyTorch following mixed precision.
- Developed ETL pipelines for embedding data into VectorDB, ensuring data integrity and accessibility for ML tasks.
- Utilized Python, PyTorch, Scikit-learn, MLFlow, and Airflow to build and deploy ML pipelines on AWS Sagemaker.
- Designed in-house QnA application using RAG architecture and vector DB deployed on AWS-Bedrock
- Conducted exploratory data analysis (EDA) to identify key insights and inform model development.

**Paytm** <div align="right">Delhi, India</div>
Software Engineer <div align="right">Sept 2019 - Aug 2021</div>
- Designed and implemented Java-based REST APIs for runtime distributed caching reloads on production servers.
- Resolved critical production issues related to payment gateway response times, system overloads, and downtimes.
- Managed production releases on AWS EC2 using CI/CD pipelines.
- Collaborated with cross-functional teams (QA, Product) and assisted in A/B and user acceptance testing (UAT).
- Gained hands-on experience with cloud technologies and container systems such as Docker and Kubernetes.

**Zillious Solution Pvt Ltd** <div align="right">Delhi, India</div>
Technical Associate <div align="right">June 2018 - Sept 2019</div>
- Developed Java-Spring-MVC based REST APIs with atomic SQL transactions for B2B tools.
- Collaborated on a microservice for a deep learning OCR parsing model, improving operational efficiency and accuracy.
- Worked with 0.5 million image data-sets to develop, implement data-driven solutions for expense management tool.

**Zillious Solution Pvt Ltd** <div align="right">Delhi, India</div>
Software Engineer Internship <div align="right">June 2017 - Aug 2017</div>
- Developed Java-Spring-MVC based Biometric attendance analysis REST APIs for ERP tool used in Zillious Solutions.
- Developed UI/UX for the ERP tool and a detailed leave tracking analysis dashboard for the tool.

## Education

| | | |
|---|---|---|
| **California State University - Fresno, CA USA** | Master of Science (M.S.) | Aug 2021 - Dec 2023 |
| Major in Computer Science | | |
| **Sant Longowal Institute of Engineering & Technology, India** | Bachelor of Engineering(B.E.) | Aug 2014 - May 2018 |
| Major in Computer Science | | |

## Projects | [Github](#)

**Thesis - M.S |Computer Science - CSU Fresno |** ([Thesis-Link](#))
    **Topic**: Blindfolded Spider-Man Optimization: A Single-point Metaheuristic Suitable for Continuous and Discrete Space
- Developed a new metaheuristic algorithm using memoization concept in higher dimensions.
- Researched on unbounded knapsack discrete problems and applied metaheuristics to achieve the most optimum. result following several higher dimensional implementations ranging from 2-Dimension to 20-Dimensions.
- Data analysis on statistical significance tests like shapiro-wills, kruskal-wallis, converse tests with 0.05 p value.

**Non-Convex Optimization Opensource Python Package** | [pypi.org](#) | [GitHub](#)
- Python package **published on pypi.org** providing a collection of non-convex functions for testing and benchmarking optimization algorithms, written in Python and **install using pip** command

## Technical Skills

**Programming Languages & Frameworks:** Python, Java, JavaScript, Spring-MVC, Flask,, Data Structures

**Software Machine Learning Engineering:** PyTorch, TensorFlow, Scikit-learn, Scipy, OpenCV, HuggingFace-Transformer, LLMs Fine Tuning, ETL ML Pipeline AWS-Bedrock, AWS Sagemaker.

**Development Practices & Tools:** RDBMS, VectorDB, Object-Oriented Programming, Terraform, SDLC, Agile Development, Scrum, TDD, CI/CD, JIRA, Docker, Kubernetes, MLFlow, Apache Airflow, Kafka, , Spark, AWS Cloud**.**