# Shishir Kallapur

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## Professional Summary

AI-focused Software Engineer and aspiring Machine Learning Engineer with 2+ years of experience delivering full-stack and intelligent solutions. Skilled in machine learning, reinforcement learning, NLP, transformers, large language models (LLMs), model fine tuning, prompt engineering, vector database integration and cloud-native development. Experienced in building GenAI and RAG pipelines for production-ready solutions. Passionate about translating cutting-edge AI research into robust, production-grade systems that deliver measurable business value.

## Education

**Northeastern University**, Boston, MA — Sept. 2023 – May 2025
Master of Science in Artificial Intelligence — GPA: 3.91
Khoury College of Computer Sciences
Courses: Foundations of AI, Programming Design Paradigm, Algorithms, Machine Learning, Reinforcement Learning, Natural Language Processing, Advanced ML, AI for HCI

**The National Institute of Engineering**, Mysore, India — Aug. 2017 – Aug. 2021
Bachelor of Engineering in Computer Science and Engineering — GPA: 3.57

## Technical Knowledge

**Languages:** Python, JavaScript, HTML, CSS, Java, SQL, C, C++, Angular
**Databases:** MySQL, MongoDB
**AI/ML:** GenAI, LLMs, RAG, Reinforcement Learning, NLP, Transformers, MLOps, ML System Design, Model Fine-Tuning
**Frameworks:** PyTorch, TensorFlow, Scikit-Learn, OpenCV, Spring, Streamlit, JUnit, NumPy, Matplotlib
**Tools:** Git, Docker, Pinecone, Gspread, AWS (EC2, S3, Lambda), JIRA, ServiceNow
**Certifications:** AWS Cloud Practitioner, ServiceNow Certified System Administrator

## Work Experience

**Amplifier Security** — May 2024 – Aug. 2024
*AI Product Intern*
- Spearheaded a comprehensive benchmarking initiative for GPT models(GPT-3.5, GPT-4, GPT-4o) significantly enhancing Ampy's response accuracy, speed, and overall performance.
- Implemented guardrails and prompts that boosted topical relevance by 35%, reducing hallucinations.
- Automated response evaluation with custom Python scripts, improving testing speed by 3x.
- Implemented a Retrieval-Augmented Generation (RAG) system with LangChain using Pinecone as Vector DB, enabling contextual replies from proprietary unstructured data.

**JP Morgan Chase & Co.**, Bangalore, India — Sept. 2021 – Aug. 2023
*Software Engineer*
- Overhauled ServiceNow Knowledge module, enhancing request resolution speed by 20%.
- Integrated JIRA with ServiceNow to automate SDLC tracking and reporting, incorporating CI/CD automation best practices and reducing manual effort by 40%.
- Delivered 5 reusable UI macros to streamline HR documentation workflows; improved HR team's document update efficiency by 45%.
- Introduced and deployed catalog automation features, reducing request handling time by 30%.

**MiQ Digital**, Bangalore, India — Jan. 2021 – July 2021
*Software Developer Intern*
- Implemented full-stack features using Spring Boot and AngularJS, enhancing platform performance and UX.
- Integrated DSPs (Xandr, DV360) into internal tools, streamlining campaign activation and data processing.
- Enabled DV360 as a viable DSP option, accelerating project timelines and increasing platform utility.

## Projects

**Relating Physical Activity to Problematic Internet Use in Youths** — Sept. 2024 – Dec. 2024
- Developed a ML pipeline to identify at-risk youths, leveraging physical activity data to promote digital welfare.
- Used transformer autoencoders and Random Forest based imputers to preprocess noisy, incomplete data.
- Achieved 72% mean QWK score using a voting classifier that combined XGBoost, LightGBM, and CatBoost, effectively addressing dataset complexity and imbalance.

**nGPT, BART and PEGASUS: A Comparative Study** — Sept. 2024 – Dec. 2024
- Designed a benchmarking pipeline to compare nGPT, BART, and PEGASUS for abstractive summarization tasks.
- Fine-tuned nGPT for text summarization, validating faster convergence and lower resource usage with optimized hyperparameters.
- Analyzed training loss trends, inference times, and ROUGE scores to confirm nGPT's efficiency in model deployment.

**Enhancing Bipedal Robot Locomotion using RL with Reference Signal Integration** — Jan. 2024 – April 2024
- Developed a RL pipeline to enable a bipedal robot to achieve natural, energy-efficient locomotion in a simulated environment.
- Designed a unique reward function to optimize joint parameter control, driving improvements in balance and energy efficiency.
- Integrated control systems with RL methodologies to refine the robot's navigation along predefined paths for efficient locomotion.