**Yash Lomate**
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## EDUCATION

**Northeastern University** Sep 2025 - Present
Master of Science in Artificial Intelligence GPA: 4.0 out of 4.0
Relevant Coursework: Applied Programming and Data Processing for AI, Algorithms

**Savitribai Phule Pune University – D.Y. Patil College of Engineering** Sep 2020 - Jul 2024
Bachelor of Engineering in Computer Engineering GPA: 3.55 out of 4.0

## TECHNICAL SKILLS

**Languages**: Python, C++, SQL, JavaScript
**ML Frameworks**: TensorFlow, PyTorch, Hugging Face Transformers
**LLM/GenAI**: Langcahin, RAG Pipelines, Prompt Engineering, Vector Databases
**Specializations**: Deep Learning, NLP, Computer Vision, RAG, Generative AI
**Cloud and DevOps**: Microsoft Azure, AWS, Git, MLflow

## WORK EXPERIENCE

**Speed Tech** Oct 2024 - Apr 2025
Research and Development Intern, *Pune*
- Designed and fine-tuned Generative AI and RAG (Retrieval-Augmented Generation) models using TensorFlow, PyTorch, and OpenAI APIs to enhance contextual reasoning and automation.
- Collaborated with a 5-member cross-functional team (ML engineers, data engineers, and product) to design and iterate on AI features.
- Implemented semantic vector search and AI-driven pipelines for intelligent data retrieval and knowledge management.
- Architected multi-agent AI system for Data analytics, integrating NLP chatbots and automated data pipelines that processed 10 thousand plus daily transactions.
- Interacted directly with clients to gather requirements, present demos, and incorporate feedback into model improvements.

**Thyssenkrupp Industrial Solutions** Feb 2023 - Jul 2023
Cloud Engineering Intern, *Mumbai*
- Contributed to Automating cloud resource provisioning across 3 global regions, reducing deployment time, resource provisioning, MFA, and application proxies.
- Partnered with cloud engineers and security specialists to support global provisioning processes and build knowledge of cloud risk management, MFA, and resource optimization.

## PROJECTS

**Contactless Fingerprint Verification System** — *Python, TensorFlow, OpenCV, Git* 2024
- Engineered a contactless fingerprint verification system using **Convolutional Neural Networks (CNNs)** and Bezier-surface modeling, enhancing biometric precision and matching efficiency. Implemented score-level fusion combining deep learning-based CNN descriptors with traditional minutiae-based features using **TensorFlow**, improving recognition robustness
- Achieved **93.75%** accuracy in hybrid verification experiments; tracked model iterations and hyperparameters using **MLflow** for reproducibility. Applied **Computer Vision** techniques for image preprocessing, noise reduction, and feature extraction across 10K+ fingerprint samples

**Image Mosaic Reconstruction Engine** — *Python, NumPy, PyTorch, Gradio, Git* 2025
- Developed an image-processing pipeline that segments images into grids, classifies cells via intensity/color thresholds using **PyTorch**, and reconstructs mosaics from a curated tile dataset
- Built interactive **Gradio** interface enabling real-time user testing and visualization of reconstruction quality. Optimized core algorithms with **vectorized NumPy operations**, achieving **32x speedup** over iterative approaches
- Evaluated output quality using MSE/SSIM metrics; documented performance scaling across grid sizes (8x8 to 64x64)

**LLM-Powered Document Q&A System** — *Python, LangChain, Hugging Face, Pinecone, Azure* 2025
- Built end-to-end **RAG pipeline** using **LangChain** and **Hugging Face Transformers** for intelligent document retrieval and question answering. Implemented semantic chunking and embedding generation using sentence-transformers; stored vectors in **Pinecone** for sub-100ms retrieval
- Deployed containerized application on **Microsoft Azure** with CI/CD pipeline via **Git** and monitored model performance using **MLflow**. Reduced manual document search time across 1,000+ PDF documents

## CERTIFICATIONS AND ACCOMPLISHMENTS

- **Research Publication:** Co-authored "Contactless Fingerprint Verification Using CNN", accepted for publication in the International Journal of Scientific Research and Engineering Development (IJSRED). Proposed a hybrid fingerprint-verification model using CNNs, Bezier surfaces, and score-level fusion.
- **Python Course** – GUVI IITM Research Park, **Academy Accreditation - Generative AI Fundamentals** - Databricks, **MySQL Bootcamp** – Noble Work Foundation, **Agile Metrics for Project Management** - Udemy