Swaapnika Chowdary Cherukuru

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Professional Summary

Graduate student and mission-driven AI innovator passionate about applying generative AI and large language models to solve complex societal challenges. Experienced in human-centered product development, participatory design, and data-driven problem solving from concept to scalable deployment. Committed to building responsible, impactful AI solutions that drive innovation in the public sector, nonprofit, and civic domains

Education

Northeastern University **Boston, MA**

Master of Science – Information Systems, with a specialization in Artificial Intelligence *2024 - Present*

- **Relevant Courses:** Applications of AI, Artificial Intelligence Engineering and Applications, Branding and AI, Data Management and Big Data, Machine Learning, Natural Language Processing, Communication and Network Security, Application Engineering and Development, Network Structures and Cloud Computing
- **Focus Areas:** Generative AI and Large Language Models, Human-Centered AI Product Development, Responsible AI Implementation, Data-Driven Problem Solving, Agile Software Development

Mahindra University **Hyderabad, India**

Bachelor of Technology – Artificial Intelligence *2020 - 2024*

- **Capstone Focus:** Applied AI Systems for Real-World Challenges, Genomic Data Analysis, Autonomous Systems, and Data-Driven Decision Making

Technical Skills

Programming & Core Languages: Python, Java, SQL, C++
Generative AI & Large Language Models: GPT (via LangChain), BERT, T5, Hugging Face Transformers, LangChain, LangGraph, LlamaIndex, Mem0, Neo4j Graph QA Chain, IBM Watson Assistant, Prompt Engineering, Fine-tuning LLMs
Machine Learning & Deep Learning: TensorFlow, PyTorch, Keras, scikit-learn, CNNs, RNNs, GRUs, Autoencoders, YOLO, Sentiment Analysis, Time-Series Modeling
Natural Language Processing: Text Normalization, Tokenization, TF-IDF, Speech-to-Text (STT), Text-to-Speech (TTS), Semantic Search, Summarization
Cloud AI & Scalable Deployment: AWS (SageMaker, Lambda, Bedrock, Comprehend), Azure (OpenAI, Cognitive Services), GCP (BigQuery, Firebase), Docker, CI/CD, MLOps, LLMOps
Data Engineering & Big Data: PySpark, Databricks, Snowflake, ETL Pipelines, Azure Data Factory, MQTT Messaging, Data Lifecycle Policies
Web & API Development: Flask (API Development), RESTful APIs, GraphQL, Webhooks
Data Visualization & Analysis: Tableau, Matplotlib, Plotly, Precision-Recall, ROC-AUC, Confusion Matrix Analysis
Databases & Storage: PostgreSQL, MySQL, MongoDB, Neo4j (Graph Database)
Responsible AI & Security: Responsible AI Frameworks, AES-256 Encryption (at rest & in transit), Role-Based Access Control (RBAC), Federated Learning, HIPAA-aligned Data Privacy Controls

Work Experience

Graduate Teaching Assistant – AI Engineering and Applications **September 2025 - Present**

Northeastern University *Boston, MA*

- Support a graduate-level course on AI Engineering, Branding, and Human-Centered Applications, guiding students through the full AI product development lifecycle; from research and ideation to deployment and evaluation
- Mentor project teams in designing end-to-end generative AI solutions and multi-agent workflows using OpenAI APIs, n8n, and custom machine learning models, integrating multi-source data (YouTube, Reddit, Google Custom Search) for automated insights
- Collaborate on the design and assessment of Madison Framework PRDs, data strategies, and system architectures, ensuring solutions align with agile methodologies, scalable engineering practices, and responsible AI principles
- Facilitate participatory design and problem-solving sessions, helping students apply evidence-based research methods and ethical AI deployment strategies in real-world scenarios
- Conduct weekly technical sessions and office hours to support debugging, model optimization, and data-driven decision-making, reinforcing best practices in AI product engineering.

Generative AI Intern **Jan 2024 – Aug 2024**

Perficient, Inc. *Hyderabad, India*

- Designed and deployed an AI-driven onboarding assistant using IBM Watson Assistant, automating HR workflows and improving accessibility for diverse employee populations
- Built a natural language interface leveraging LangChain and LLMs to translate user queries into Cypher, empowering non-

technical users to explore organizational knowledge graphs through conversational search
- Led the design, development, and delivery of a full-stack AI product, from requirements analysis and technical research to testing and deployment, incorporating iterative feedback cycles with stakeholders
- Integrated responsible AI practices, including bias evaluation and transparent decision-making logic, to ensure ethical, inclusive solutions in enterprise environments

Generative AI and Virtual Reality module Developer Intern **July 2023 – Aug 2023**

iNuCom *Hyderabad, India*

- Created "Leo," a generative AI-powered conversational agent with text and voice interaction, enabling adaptive, real-time guidance within immersive AR/VR training environments
- Developed ML models for real-time pose estimation and feedback using TensorFlow and MediaPipe, improving learning accessibility and user engagement
- Applied human-centered and participatory design principles to prototype and deploy intuitive interfaces, showcasing how generative AI can drive innovation in education and workforce development

Autoencoder and UNet model architect, Security personnel Intern **June 2022 – July 2022**

Hewlett-Packard; National University of Singapore *Singapore*

- Architected a modular deep learning pipeline combining UNet, Autoencoders, and ChestNet CNNs, achieving 98.3% accuracy for thoracic disease classification and contributing to improved diagnostic support
- Developed a secure, federated healthcare AI platform on Microsoft Azure with real-time inference and periodic model updates, enhancing access to AI-driven healthcare services in distributed clinical settings
- Directed data security, privacy, and compliance efforts with AES-256 encryption, RBAC, and automated lifecycle policies, aligning with healthcare regulations and responsible AI deployment standards

Selected Projects

AI for Discovering Signatures of Drug Resistance in Bacterial Genome Mahindra University

Convolutional Neural Networks | Deep Learning | Genomic Data Analysis | Feature Engineering | Bioinformatics

- Built a deep learning pipeline using CNNs and BioPython to identify genomic motifs linked to antimicrobial resistance, advancing public-health-oriented drug discovery
- Engineered advanced sequence encoding strategies (k-mer embeddings, physicochemical vectors) to improve model interpretability and predictive performance

CloudCareIQ – AI-Powered Health Monitoring System on the Cloud Mahindra University

Deep Learning | Time-Series Analysis | PyTorch | OpenCV | AWS IoT Core | SageMaker | Lambda | EKS | GraphQL | Firebase

- Developed a cloud-native analytics platform using LSTM models and AWS services to process real-time wearable data for proactive health anomaly detection
- Deployed an event-driven, auto-scaling pipeline delivering personalized insights and demonstrating how AI can improve healthcare accessibility and equity

Smart City Well-Being Monitoring System Northeastern University

Smart Cities | Java | REST APIs | IoT | Machine Learning | Data Visualization | HTTPS | AES-256 | RBAC | MySQL | Anomaly Detection

- Designed a multi-source civic analytics platform integrating IoT and public data for event detection, trend forecasting, and data-driven policymaking
- Built a human-centered, privacy-compliant dashboard with secure data pipelines (AES-256, RBAC) and interactive visualizations to support community-focused decisions

Food Redistribution and Empowerment System Northeastern University

Java Swing | MVC Architecture | NetBeans | MySQL | GitHub | Logistics Optimization | Sustainable Tech

- Created a logistics optimization platform connecting donors, NGOs, and volunteers to reduce food waste and address hunger through real-time coordination
- Applied human-centered design and proposed geolocation and notification features to scale social impact and improve accessibility

Certifications and Training

Artificial Intelligence – Training Certification

Acmegrade in association with IIT Bombay

- Hands-on training in deep learning, computer vision, and NLP using Python, TensorFlow, and Keras
- Built image classification and NLP models, applying data-driven problem-solving and collaborative project development

Artificial Intelligence – Training Certification

Smartknower

- Developed a facial recognition system and predictive ML models, demonstrating applied AI product development skills.

Cybersecurity & Cyber Law – Participation Certificate

St. Claret College

- Participated in a Capacity Building and Skill Enhancement Program covering fundamentals of cybersecurity, digital forensics, cyber laws, and data protection frameworks