

## TEJA POTU

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### EDUCATION

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**Doctor of Philosophy in Computer Science**, Florida State University, GPA: 3.92 Jan '23 - Dec '27 (Expected)

### SKILLS

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**Languages** : Python, C/C++, Java, TypeScript, JavaScript, SQL  
**ML & DL** : PyTorch (DDP, AMP), TensorFlow, Hugging Face, Scikit-learn, GNN, RL, GANs  
**LLMs & NLP** : Transformer architectures, RAG, LangChain, ChromaDB, LLM Evaluation, SciBERT  
**Frameworks** : FastAPI, React, Next.js, CrewAI  
**Data & Tools** : NumPy, Pandas, MLflow, Git, Firebase, PostgreSQL  
**Systems** : AWS (EC2, S3, Lambda, SageMaker), GCP, Docker, HPC (SLURM), CI/CD, REST APIs

### EXPERIENCE

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**Research Assistant [National High Magnetic Field Laboratory]** May 2024 – Present

- **Graph-Based Formula Attribution Engine**: Engineered a graph algorithm using weighted mass-difference networks and **Dijkstra-style max-heap traversal** to attribute molecular formulas across thousands of nodes, with cross-component discovery, instrument precision models, and isotope envelope pattern matching — resolving **>90% of spectra** and cutting manual workflows from **days to minutes**.
- **LLM Auto-Analysis Agent**: Built a multi-provider **tool-calling agent** (Anthropic, OpenAI, Gemini, Ollama) that autonomously calibrates spectra, tunes parameters, and identifies **chemical composition of unknown samples** — enabling **zero-code analysis** for domain scientists.
- **MassWiki**: Built a **Claude-powered** skill-based knowledge base for mass spectrometry research. Natural-language commands drive paper ingestion, cross-linking, and auditing — revealing **research gaps** and novel ideas by cross-referencing existing work.

**Graduate Software Engineer [Meeami Technologies]** Aug 2021 – Dec 2022

- Improved on-device **deep learning inference** by **44%** through profiling, operator-level optimization, and SIMD kernel engineering; integrated into a **C++ production SDK** deployed across mobile and embedded.
- Built **10× smaller** speech models with **16% quality improvement**, using **MLflow** for experiment tracking, model versioning, and **automated CI/CD pipelines** for reproducible training and deployment.

### SELECTED PROJECTS

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- Built **CaseTwin**, a clinical decision-support platform (**CrewAI agents**, medical image **RAG**, **MedGemma** on AWS) that automates case matching and referral docs, reducing a 4-hour workflow to **5 min. Won Agentic Workflow Prize** — Google MedGemma Impact Challenge (**850+ teams**).
- Developed **Questory**, a narrative-driven EdTech platform (TypeScript + FastAPI + Firebase) using **Google Gemini Live API** for real-time interactive storytelling, deployed on **GCP**.
- Built **CheckUp**, a WhatsApp-based AI assistant (Python + Twilio + LLM) that automates daily wellness check-ins for elderly parents, supporting **multilingual conversations**, medication reminders, and real-time health alerts for remote caregivers.
- Developed **SCGclust**, a graph autoencoder framework integrating **SNVs and CNAs** for single-cell tumor-clone clustering, increasing accuracy from **22% to 84%** using an **attention-based GCN** on datasets with **10K+ cells**. Published in **MDPI Mathematics**.

### PUBLICATIONS

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- T. Potu et al. *SCGclust: Single Cell Graph Clustering Using Graph Autoencoders Integrating SNVs and CNAs*. MDPI Mathematics, 2025.
- R.P. Rodgers, C.L. Hendrickson, ..., T. Potu, et al. *Internal Calibration without Internal Calibrants in FT-ICR Mass Spectrometry*. Analytical Chemistry, 2025.