

Hotragn Pettugani

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EDUCATION

Northeastern University

Master of Science in Information Systems, GPA: 3.7/4.0

Boston, MA

May 2026

Woxsen University

Bachelor of Technology in Data Science and Artificial Intelligence

Hyderabad, India

May 2024

WORK EXPERIENCE

Graduate Research Assistant

Sep 2024 – May 2025

Northeastern University

Boston, MA

- Performed large-scale proximity analysis of **200+** law schools by implementing a Python-Selenium automation framework that processes 10GB of unstructured data.
- Computed geospatial metrics via ArcGIS geocoding for **>5k** companies, reducing data-preparation time by **70%**.
- Cut data processing time by **85%** through execution of the custom fuzzy-string matching system using the Levenshtein Distance algorithm.
- Implemented high-performance computing by accessing parallel GPUs with different metrics in discovery cluster for Merger & Acquisition data, achieving **83%** unbiased company matching across subsidiary networks.

Software Engineering Fellow

Jan 2024 – May 2024

Foruppo

Remote, India

- Shipped 2 Next.js/TypeScript apps with SSO + Firebase real-time listeners, cutting sync latency by **40%**.
- Achieved **30%** fewer network calls with a GraphQL layer over REST, eliminating client side over-fetching.
- Engineered responsive, cross-device UIs from reusable Material UI components and custom React hooks.
- Boosted the Lighthouse score from **65** → **91** by applying lazy loading and React render optimizations.

Research Intern

Feb 2023 – Jul 2023

AppsTek Corp.

Hyderabad, India

- Compared **3** routing solvers in Docker containers on AWS, choosing pyvrp's hybrid genetic search for routes **~9%** shorter than a nearest-neighbor baseline.
- Built a capacitated VRP routing engine that plans **17-stop**, **4-truck** collection routes at full vehicle capacity in under **1 second**.
- Cached Google Maps travel-time matrices in Redis with a **5-min** TTL, slashing redundant API calls and holding live re-routing within budget.
- Automated deployments to **AWS ECS** on every push to main via GitHub Actions, using **OIDC** to eliminate long-lived keys and reduce deployment time to under **10 minutes**.

PROJECTS

TravelGraph-AI | Python, Neo4j, SQL, OSM, APIs, Cortex | github

- Presented research poster at the **Knowledge Graph Conference (KGC) 2026** and won the poster session.
- Architected Travel Graph RAG pipeline (Neo4j+Snowflake Cortex LLM llama3-70b) over 50,000+ tourism nodes.
- Designed triple validation methodology for dynamic Cypher query generation with Bcrypt authentication, while maintaining 74% accuracy in database query generation.

Intelligent Content Aggregator & Knowledge Synthesizer | FastAPI, JavaScript, PostgreSQL | Cert

- Created a reading tool that eliminates **95%** of on-page advertisements by building a custom JavaScript DOM scraper to extract and sanitize text from multiple active browser tabs simultaneously.
- Reduced user content-consumption time by approx. **60%** by deploying a Hugging Face DistilBART model for real-time summaries, caching processed data in PostgreSQL for sub-100ms retrieval on repeated queries.

TECHNICAL SKILLS

Languages & Frameworks: Python, Java, JavaScript, TypeScript, SQL, React, Django, HTML/CSS

Databases & Cloud: AWS, Azure, Docker, Kubernetes, PostgreSQL, MongoDB, Snowflake, Neo4j

AI/ML: Cursor, Copilot, TensorFlow, PyTorch, Scikit-learn, LangChain, Llama 3, OpenAI

Developer Tools & APIs: Git, Linux, Selenium, Postman, CI/CD, REST API, GraphQL, JUnit, TCP/IP, OSI

LEADERSHIP & ACHIEVEMENTS

Leadership: Founder – AWS Builders at Northeastern | Technical Lead – Google Developer Group, Northeastern