

Santhosh Balaji

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PROFESSIONAL SUMMARY

Master's student in Human-Centered AI with experience in Python, FastAPI, JavaScript, and distributed AI deployment. I enjoy working with data cleaning, structuring, and building pipelines around it. I have built AI-driven features such as embedding pipelines, document processing, and backend model APIs, and deployed quantized LLMs across mobile devices for efficient inference. My work spans data engineering, system integration, and real-world ML pipelines. Currently developing a React application for a company, and I am excited to keep working at the intersection of data, AI, and practical system development.

SKILLS

- **Programming:** Python, Java, JavaScript, Kotlin, Linux, PyTorch, SQL, FastAPI, React, Git
- **AI/ML:** Machine Learning models, Embeddings, RAG/data Pipelines, Quantized LLMs, Edge Deployment
- **Data & Analytics:** Feature Engineering, PCA, Data preprocessing, Power BI (basic), Applied Cryptography, Social Network Analysis
- **UX/UI:** Human-Centered Design, UX Prototyping, Usability Testing
- **Professional Competencies:** Miro, Agile workflows, Critical Thinking, Data Visualization

EDUCATION

Master of Science: Human-Centered Artificial Intelligence (Aug 2025 - Jun 2027) — *Technical University of Denmark*, Lyngby Denmark

Relevant Coursework: Machine Learning, Deep Learning, Reinforcement Learning, Computational Data Analysis, UX Design Prototyping, High-Performance Python.

Bachelor of Science: General Engineering (Cyber System) (Aug 2022 - Jun 2025) - *Technical University of Denmark* - Lyngby, Denmark

Relevant Coursework: Distributed Neural Networks, Embedded Systems, Functional Programming, Algorithms & Data Structures, Computer Science Modelling, Agile Object-Oriented Software Development.

WORK HISTORY

Application Developer, sep 2025 – *Now*

Byensrengøring Aps – Nygårdsvej 11, 9600 Aars

- Built a digital workforce management platform, including scheduling, HR workflows, and operational planning features.
- Developed dashboards and automated reporting (Python/SQL) and deployed cloud components on AWS to support data-driven decisions.
- Produced internal guides and visual materials to support adoption by non-technical users.

Customer Service & Operations Associate, Dec 2019 – Aug 2021

Domino's Pizza – Østerbrogade, Copenhagen, Denmark

- Handled daily operations and system-based reporting, ensuring data accuracy, workflow efficiency.

RELEVANT PROJECTS

Distributed Neural Networks (Kotlin, python)

Built a decentralized RAG pipeline using data parallelism across mobile devices. Each device performed local vector search and ran 4-bit quantized LLMs for low-latency edge inference, then returned partial answers for central summarization. Implemented Slack → Python → Firestore orchestration, optimized inter-device communication and streaming JSON handling, and demonstrated improved latency and scalability over centralized RAG.

Topic and Sentiment Analysis of 50,000 U.S. News Articles (Python)

Python, TF-IDF, K-Means, MinHash, LSH, Louvain, NLP, Graph Analytics

Analyzed 50k news articles using a full NLP and graph-based pipeline. Extracted global topics with TF-IDF and K-Means, computed sentiment across time and publications, and constructed a document similarity graph using 5-character shingles, MinHash, and LSH. Applied Louvain community detection and compared clustering structures using contingency tables and Adjusted Rand Index.

Powerlifting Performance Data Analysis & ML Pipeline (Python)

Conducted end-to-end data processing on 18k+ powerlifting records, including cleaning malformed values, standardizing features, and visualizing distributions and correlations. Performed PCA to analyze variance structure (PC1+PC2 captured 85%) and identify strength-related components. Built supervised learning models using Ridge Regression, Logistic Regression, and Artificial Neural Networks, applying nested cross-validation, hyperparameter tuning, and statistical tests (paired t-tests, McNemar).