Hans Heje
Software Engineer Specialized in Machine Learning

Contact

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Summary

Danish full stack software engineer specializing in machine learning with extensive experience in Scrum teams and agile sprints. I have a fail-fast mentality and a passion for data science, having developed machine learning models and utilized LLMs and computer vision solutions to transform proofs of concept into production environments. Committed to strong software engineering practices, I strive to make complex data understandable. I believe teamwork and empathy are essential for fostering collaboration and innovation.

➡ Languages: Danish and English

Tech Stack

Languages:
Python, Java, JavaScript, C, C#, HTML5, CSS

Libraries/Frameworks:
FastAPI, OpenCV, SciKit-Learn, PyTorch, Keras, Tensorflow, Numpy, Pandas, React, SpringBoot, Node.js, Express, BootStrap, Qiskit

Databases and Cloud Technologies:
MongoDB, PostgreSQL, IBM Cloud

Tools:
Docker, Excel, Power BI, Git

Education

M.Sc. in Computer Science and Engineering, 09/2023 - 06/2025
Technical University of Denmark
➡ Focus Area: Computer Vision and Machine Learning.

B.Sc. in Software Engineering, 09/2020 - 06/2023
Aalborg University
➡ Study start coordinator for two study lines totalling 85 students.
➡ GPA 10.6

Work Experience

Software Engineer, 01/2022 - Present
IBM
➡ Developed and optimized a machine learning model to predict sales of various items at different locations for Smukfest, including the implementation of cloud-based pipelines for improved efficiency.
➡ Processed massive live data streams through peak analysis to filter and retain critical components of time series data, reducing the size of incoming data for wind turbine testing in the ReliaBlade project at DTU.
➡ Developed a cloud-based application that utilized machine learning for data analysis and real-time game phase estimation using computer vision, in collaboration with DBU. This effort contributed to the Danish national football team's success in tournaments, increasing their FIFA ranking from 16 to 11.
➡ Demonstrated use cases, and developed visualization tools, of quantum algorithms in the Qiskit eco system.

Cyber Security, 08/2021 – 01/2022
Januar
➡ Implemented S-SDLC. Risk analysis of companies. Reduced attack surface through initiatives & new policies.
➡ Implemented security measures (i.e., EDR, security training).
➡ General security testing (i.e., pen testing). Helped with establishing Cyber security roadmap & convinced management.

Academic Experience

Research Assistant in NLP, 09/2022 – 12/2023
Aalborg University
➡ Contributed to natural language processing research surrounding low-resource languages
➡ Created an automatic qualitative feedback summarizer using LLMs, demonstrating its potential to enhance teaching and improve educational outcomes.

Teaching Assistant in OOP, 09/2022 – 12/2022
Aalborg University
➡ Supervised their capstone project and explained concepts. Heavy focus on different design patterns.

Publications

1. Lent, H., et al. "CreoleVal: Multilingual Multitask Benchmarks for Creoles." arXiv:2310.19567 [cs.CL], 2023.

Selected Projects

1. Bachelor Thesis: Automated stock investment by leveraging machine learning for time series analysis, risk management, sentiment analysis, and portfolio optimization. Created as a microservice architecture.
2. Using traditional AI search algorithms, I created an efficient heuristic-based solver for a multi-agent system.
3. Synthesized data using generative models to improve performance of a data scarce biometric system.
4. Created a chat to video model by combining stable diffusion and Llama using TensorFLow and Scikit-learn
5. Created a machine learning classifier for protein particles using Keras and OpenCV.
6. Using MongoDB, Express, Bootstrap, Node.js I Co-created in an agile environment a website to help reduce the user's carbon footprint through the usage of APIs, forecasting algorithms (ARIMA), and an account-specific recommendation system.
7. Designed and created a board game programming language & compiler, including the grammar (EBNF), lexer, parser (AST), scope rules and type rules, that code generated to both x86 assembly and C.
8. Using MongoDB, Java, SpringBoot, React.js, collaborated with Blue City to establish requirements and model their problem domain (i.e., UML). Developed an object-oriented solution that reduced repair times.
9. Using C# and the Unity game engine, I created an iPhone game to help kids in elementary school learn math in a fun way.
10. Combined with digital electronics, I programmed an Arduino in C to create a clock that gave personalized compliments & indicating temperature