MADS MØLLER

MACHINE LEARNING ENGINEER

CONTACT

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Mads Møller

GitHub Profile

GitLab Profile

EDUCATION

Master's degree in:
Mathematics & Business Administration

GPA: 11.8

Copenhagen Business School

Sep 2021 - May 2023

Bachelor's degree in:
Mathematics & Business Administration

GPA: 10.8 (2nd highest)

Copenhagen Business School

Sep 2018 - Jun 2021

SOFT SKILLS

- Critical Thinking
- Time Management
- Project Planning
- Communication
- Team Player

CAREER OBJECTIVE

I am a motivated machine learning engineer with a motivation in developing products and services with impact. I specialize and have an interest in classic machine learning, NLP, reinforcement learning, software development, DevOps, MLOps, IoT and cloud native applications.

My core competences lies within the entire machine learning life-cycle, from where I have many skills to draw on for different areas of need. When I develop and productionize ML products and services I focus on the software architecture, reliability, maintainability and monitoring.

I am eager to develop usable software products. Personally it is important that I know why and what I am developing to have a focus on how my work is going to impact/help customers achieve their goals.

I have a large interest in Large Language Models (LLM's) and have been the main developer of what might be the first big launch of an internal chatbot using Azure OpenAI services + Azure Cognitive Search in Denmark.

From experience within consulting I have found that team work, communication and best practices are essential keys in a great product outcome.

CODING SKILLS

Python	9/10
VBA	8/10
SQL	7/10
R	7/10
C++	6/10
Shell	5/10

CONCEPTUAL SKILLS

Machine Learning	9/10
NLP	8/10
Reinforcement Learning	8/10
Mathematical optimization	8/10
Algorithms	7/10
Test-driven development	7/10
Software architecture	6/10

DEVOPS AND CLOUD SKILLS

Docker	8/10
GitHub actions	8/10
GitLab CI/CD	8/10
Azure DevOps	7/10
Azure Cloud	7/10
Linux	6/10
GCP	4/10

EXPERIENCE

Machine learning engineer - consultant

KPMG AI NewTech (2021-Now)

My current position as a full-time machine learning engineer in the Machine Learning & Quantum team entails numerous concepts within the entire machine learning life-cycle. I have been responsible for multiple different client software products in my time in KPMG. My favorite product is a custom chatbot I have developed for Radiometer (A large firm who produces blood-analyzers). Here, I created a chatbot based on ChatGPT (using Azure OpenAI services) and a function such that they can chat with their own internal data (using Azure Cognitive Search) . The solution is available for all employees globally within the firm. The case is public here.

Junior machine learning engineer - consultant

KPMG AI NewTech (2021-Now)

My student position in KPMG also entails numerous concepts within the entire machine learning life-cycle. my top three client projects are:

(1) a fraud-detection optimizer (decision boundary optimization), which can help prioritize fraudulent transactions.

(2) a deep learning based application which aggregates, assigns topics and summarizes articles from the internet and presents it in a frontend to the end-user.

(3) Mail-distribution application, with a frontend for easy configuration, can be used to train a machine learning model which automatically forwards emails to the correct mailbox.

Concepts within the work:

- Linux (main development OS)
- Software development (using Python, Docker & Kubernetes)
- API development
- Scraping
- Data storage and databage management
- Test-driven development
- Scrum workflow
- Developer Operations CI/CD
- Cloud infrastructure

RELEVANT PYTHON PACKAGES

Sklearn	9/10
Tensorflow	8/10
PyTorch	7/10
XGBoost	9/10
FastAPI	9/10
Streamlit	9/10
MLFlow	7/10
Transformers	8/10
SpaCy	8/10

Co-founder and consultant

Solutionz4U (2020-2021)

In Solutionz4U we had a goal of easing the work companies make in Microsoft Excel by selling full-automatic process workflows made in VBA and Excel applications. Since I lost interest in Excel automations I am not engaged in this anymore, but still has a passive income from a subscription product which customers are still paying for on a yearly basis.

Instructor

DJØF (2019-2022)

My instructor (teacher) position at Djøf consisted of developing, presenting and evaluating courses within Python, Linear Algebra, VBA and Microsoft Excel. In total I had 8 different courses on both beginner and advanced level. During the period I held 80+ courses for more than 2400 students.

Concepts within the work:

- Programming (Python, VBA, R)
- Debugging and investigation
- Communication

Junior Consultant

IUM Denmark (2018-2020)

My position at IUM encapsulated a role within a small data science/analytics team where my role involved analyzing media data for our clients and automating workflows and processes interna.

Concepts within the work:

- Data Engineering (SPSS, Alteryx)
- Database management
- Data analysis (VBA, SPSS, Excel)
- Result presentation

PERSONAL PROJECTS

Mathematical Analysis of transformer models for text classification

Master Thesis - CBS (Jan 2023 - May 2023)

My master thesis had a mathematical focus on how the transformer architecture (large language models) works and why they are the current SOTA model architecture within NLP. I wrote my master thesis in collaboration with a company where I designed a RoBERTa model in combination with a XGBoost model which automatically can distribute emails to the correct inbox with an accuracy of 96% and a model coverage of 87%.

Prediting the stock market using deep neural networks

Bachelor Project - CBS (Feb 2020 - Jun 2020)

My bachelor project had a mathematical focus on deep neural networks and how they can be used to predict the stock market. Specifically I investigated the performance for RNNs and LSTMs and how they can be used to predict the returns of a stock. The main model was developed in Tensorflow.

Template ML application

Personal Project (Apr 2021 - Now)

GitLab repo

This repo acts as a vanilla repo for my personal machine learning software applications. The repo is in constant development since it gets extended every time I come up with a feature which is always nice to have in a project. It is a full-stack software product, which consists of a PostgreSQL database, an API (using FASTAPI), a frontend website (using streamlit), a Jupyter server (for testing). All the components runs as docker containers and in development it can easily be spinned up using docker-compose.

Concepts within the work:

- Software architecture/stack
- DevOps
- REST api usage and schemas

Cinema Scraper

Personal Project (Jan 2022 - Apr 2022) - Archived

GitLab repo

This service is a web scraping application. It scrapes kino.dk where it scrapes every 5 minute, such that it scrapes how many seats there has been sold for every show in Denmark. It runs as a docker-container and can be deployed to any cloud provider. The value of the project was competitor surveillance for the companies owning the cinema's in Denmark. No business case was found hence the project has been archived.

Concepts within the work:

- Web scraping
- Docker

Mailbox sorter

Personal Project (Sep 2022 - Nov 2022)

GitLab repo

The idea behind this project was to make a general application where if a company has a main-email, where it receives emails, which needs to be distributed to other emails (departments) the tool can do it for them. Using a machine learning model the application can learn which incoming emails should be distributed to which departments. I am now making this project for KPMG instead of it being a personal project. The repo is therefore not beautiful, but it consists of a login-based streamlit frontend and a backend.

Concepts within the work:

- Same as template ML application

Grocery shopping

Personal Project (Sep 2022 - Nov 2022)

GitHub repo

This service is a simple web scraping application. You can feed the app with a receipe from HelloFresh and then it puts the groceries required into a basket for you on nemlig.com