Rasmus Arpe Fogh Egebæk

CV

I'm an ambitious programmer who specializes in machine learning and data analysis. My professional passion is to have a positive influence on the world through data centric solutions - whether that is by automating tasks, providing insights to stakeholders with machine learning or simplifying and explaining complex data through visualizations or statistics. I enjoy a steep learning curve and I'm quick at getting familiar with new business terminology and technologies.

I have professional experience with machine learning research, data pipelines, data visualization, development of machine learning models, preparing machine learning models for production and machine learning operations (MLOps) from my time as Chief Technical Officer of Alvenir and the pre-company DanSpeech.

I have strong software development skills from working in an IT consultancy firm and I know my way around microservice architecture, monolith architecture, databases, front-end development, cloud infrastructure, cloud services and various APIs, frameworks and programming languages.

I have experience working with agile methodoligies such as Scrum and SAFe and I find well-planned working procedures important in order to efficiently progress.

Contact

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Professional Experience

Aug 2022 – now
Board Member, *Alvenir*.
Advise Alvenir on software architecture, infrastructure, data pipelines, training of machine learning models, MLOps and strategic technical goals.

Jan 2020 – July 2022
Chief Technical Officer, *Alvenir / DanSpeech*.
Co-founded Alvenir together with a DTU Professor, two angel investors and a Partner. Before founding Alvenir, we were developing the business case, software and machine learning models as an InnoExplorer funded project (DanSpeech).

- Architect and developer of a microservice cloud platform for speech recognition with horizontal scaling, multiple languages and customizable inference pipelines with multiple task specific services.
- Leading software and machine learning development for our team of 3 engineers (including me).
- Training of machine learning models for Automatic Speech Recognition and various Natural Language Processing tasks.
- Batch processing data pipelines for mining various online data and transforming and storing the data for machine learning model training.
- Dashboards visualizing insights for audio, based on outputs from machine learning models and other statistics derived from speech recognition transcripts.
- Research in using speech recognition transcripts for downstream natural language processing tasks.
- AI consultancy work for two clients helping them to realize the potential of enhancing their businesses with natural language processing as well as the development of machine learning models and inference software.
- Technologies used; Python, Pytorch, Tensorflow, Huggingface Transformers, Docker, Kubernetes, Helm, Helmfile, SQL, FastAPI, Kafka, GCP, AWS, Angular, PostgreSQL, Fairseq, KenLM, Scikit-learn etc.

Sep 2019 – Nov 2020	**Consultant**, *Netcompany*. Software development as an IT consultant on various projects ranging from 5-100+ participants. Three projects highlighted below.

- **Project 1:** Development of an application for converting, validating and enriching data from an old legacy system to a newer one using a mix of automatic and manual (customer required actions) dataflows. Technologies used; Groovy, Angular, Spring (Boot, Web, Cloud, Security), Hibernate, Liquibase, SQL, Gradle, Git, Rest, Soap etc.

- **Project 2:** Batch processing system responsible for processing, enriching and validating thousands of data records as well as paying money to Danish citizens. Consisted of numerous batch jobs. Various integrations such as Rest, Soap, AWS SQS, AWS SNS, AWS S3. Deployed via Kubernetes (AWS EKS). Technologies used; Groovy, Ebean, Flyway, Git, Gradle, AWS, Terraform, Docker etc.

- **Project 3:** Development of a microservice responsible for storing data records from Kafka in a PostgreSQL database and exposing data via a Rest API. Data migration of legacy data to populate the PostgreSQL database. Technologies used; Java, Spring boot, Hibernate, Liquibase, SQL, Gradle, Kafka, Docker, Openshift etc.

Jul 2019 – Aug 2019	**Research Assistant**, *Technical University of Denmark*. Open-sourcing of DeepSpeech 2 Automatic Speech Recognition models for Danish. Furthermore, I conducted multiple experiments such as multilingual Automatic Speech Recognition, distillation of large deep learning models and Unidirectional Automatic Speech Recognition models for real time inference.
Feb 2019 – May 2019	**Teaching Assistant**, *Technical University of Denmark*. Assisted students in the course 02806 - Social data analysis and visualization with Python coding, Javascript coding and visualization theory.
Aug 2017– Nov 2018	**Analyst**, *Netcompany*. Development of one of the largest social benefits IT systems in Denmark. Primarily backend coding in Java along with SQL queries.
Feb 2017 – May 2017	**Teaching Assistant**, *Technical University of Denmark*. Assisted students in the course 02170 - Database Systems with understanding the curriculum in order to solve the course exercises.

Languages

Danish	Native
English	Full professional proficiency

Education

2013–2019	**Technical University of Denmark**. Digital Media Engineering[1] (M.Sc.) - GPA: 11.4 Thesis: *Building an Open-Source Speech Recognition Tool for Danish - Grade 12* Computer Science Engineering (B.Sc.) - GPA: 9.7 Thesis: *Efficient Feedback Analysis using Recurrent Neural Networks - Grade 12*

Extra Curricular Activities

Abbreviations: *Polyteknisk Forening (PF), Technical University of Denmark (DTU)*

2016–2017	President of the PF Software Technology and Mathematics and Technology study-counsel at DTU.
2016–2017	Constituted member of PF Indstillingsudvalg (PFIU). Reviewing student applications for dispensations regarding the rules of Polyteknisk Kollegie Selskab (DTU dormitories).
2016–2017	Constituted member of the PF social counsel at DTU.
2016	Award: Social PF member of the year. Award given every year from PF to a student who has done an exceptional effort in the social sector of PF.
2015–2016	Coordinator of the Bachelor study start at DTU

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[1]Now called Human-Centered Artificial Intelligence

2014–2018 Constituted member of the Software Technology and Mathematics and Technology study-counsel at DTU.

2014–2015 Student Tutor (Vektor)

Research Papers

2021 Raluca Alexandra Fetic, Mikkel Jordahn, Lucas Chaves Lima, Rasmus Arpe Fogh Egebæk, Martin Carsten Nielsen, Benjamin Biering, and Lars Kai Hansen. *"Topic Model Robustness to Automatic Speech Recognition Errors in Podcast Transcripts."* arXiv preprint arXiv:2109.12306 (2021).

Talks

2022 DTU PhD Summer School; *Introduction to MLOps - From Machine Learning Model to Machine Learning Product*

Personal

I'm married and have a son who was born in August 2022 and I enjoy spending my spare time with family and friends. I guess I'm a bit of a nerd (in a positive way) as my hobbies include programming, staying up to date with new research / frameworks and open-source technology (see my webpage for more info on open-source contributions). However, I also enjoy running and I play (unserious) 7-man soccer in the series 4 division. ;-)