Dr. Peet Cremer

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Enthusiastic Engineering Manager with a can-do attitude and experience in leading teams of up to 20 people. My technical background is in Statistical Physics and Machine Learning. I combine advanced software engineering skills (Python, C++, Rust) with the knowledge of creating Machine Learning pipelines and of building up scalable cloud data platforms. I have an outgoing personality, build trust through honesty, employ strategic thinking, and base decisions on facts and data.

WORK EXPERIENCE

Principal Engineer - Atlas AI
COGNITE (Oslo, Norway) — 02/2025 - today

Leading technical initiatives in Cognite's Atlas AI platform development:
- Creating evaluation frameworks for measuring performance of Cognite's AI systems and industrial agents
- Leading identification and rollout of productivity-enhancing AI tools including Cursor, Claude Code, and Gemini Code Assist
- Developing low-code AI agent builder capabilities enabling rapid deployment of context-augmented industrial AI agents
- Implementing language model benchmarking frameworks specifically designed for industrial use cases

Director of Engineering
COGNITE (Oslo, Norway) — 02/2023 - ~~today~~02/2025

Engineering manager of 18 developers in 3 teams, focusing on:
- contextualization of industrial data
- data-driven troubleshooting apps
- Parsing of engineering diagrams for industrial sites

Senior Machine Learning Engineer and Tech Lead
COGNITE (Oslo, Norway) — 08/2021 - 02/2023

- Leading a cross-functional team of 5 software / ML engineers
- Implementing intelligent algorithms to find context in otherwise unstructured industrial data
- Scaling and maintaining microservices to deploy those algorithms in an SaaS setting
- Creating data infrastructure capabilities to build up an industrial knowledge graph

AI Lead Developer
APTIV (Wuppertal, Germany) — 12/2020 - 07/2021

- Planning and execution of Machine Learning and Data Infrastructure projects in the automotive industry
- Design of AI solutions for automotive perception tasks. Guiding the software and hardware integration into the test vehicle
- Participated in a lot of innovation, leading to 7 patents and 1 publication (see publication list)

Software Development Expert
APTIV (Wuppertal, Germany) — 07/2017 - 12/2020

- Leading development of a data platform for storage and retrieval of automotive sensor data as a product owner
- Development of infrastructure solutions for artifical intelligence in automotive applications
- Established a microservice architecture to automate AI workflows
- Supervision of a Master Thesis on using GANs for automotive data style transfer

EDUCATION

Doctor (Ph.D.), Theoretical Soft Matter Physics
University of Düsseldorf — 2013 - 2017

- Topic: Mesoscale modeling of magnetic elastomers and gels – theory and simulations
- Solving magneto-elastic coupling models using numerical simulations, the finite element method, and density functional theory
- Resulted in 7 publications in recognized peer-reviewed journals (see publication list)

Master of Science (M. Sc.), Physics
University of Düsseldorf — 2012 - 2013

- **Gpa: 1.1** (grades at german university range from 1.0 (best) to 4.0 (worst)). Minor: Mathematics
- Focus on Soft Matter, Plasma Physics, Solid-State and Nanophysics
- Master thesis: "Emergent states in active systems" was published as a journal article

Bachelor of Science (B. Sc.), Physics
University of Düsseldorf — 2008 - 2012

- **Gpa: 1.2** (grades at german university range from 1.0 (best) to 4.0 (worst)). Minor: Mathematics
- Bachelor thesis: "Orientational fields in Plastic Crystals" was published as a journal article.

SKILLS

Programming languages	Python C++ C Rust Typescript
IT working knowledge	Docker GitLab GitHub VS Code MongoDB PostgreSQL flask fastAPI Kubernetes Grafana REST Linux Node.js Azure GCP LaTeX MS Office
Libraries and frameworks	TensorFlow PyTorch scikit-learn fastAPI flask numpy scipy Qt pandas OpenMP

Machine Learning techniques	SVMs · Gradient Boosting · Population Strategies · Decision Trees · CNNs
Agile software development	Scrum · Kanban · Jira · Confluence
Languages	German (native) · English (C1) · Norwegian (B2) · French (A2)

ACHIEVEMENTS, HONOURS, AND AWARDS

- Best Poster presentation at the 15th German Ferrofluid Workshop in Rostock (2015).
- DAAD scholarship "RISE in North America" for a three month research internship at Yale University, CT (2010)

PROJECTS I CONTRIBUTED IN AS AN INDIVIDUAL CONTRIBUTOR

Vectorstore for retrieval augmented generation — COGNITE, Oslo, Norway — 04/2023 - 08/2023

- Vector similarity lookup service ~~build on top of the~~ built on Weaviate ~~vector database~~
- ~~Enables to retrieve relevant context for LLM queries to enable an~~ to enable industrial chatbot and code completion ~~experience~~

Data backend for industrial knowledge graph — COGNITE, Oslo, Norway — 06/2022 - 08/2022

- ~~Creating a backend~~ Backend to store symbols and process lines ~~extracted~~ from engineering diagrams in an industrial knowledge graph
- Implemented in Python~~and Typescript and interfaces to COGNITE's internal flexible data modeling service~~
- ~~Allows for advanced graph queries on the knowledge graph and, thereby, enables advanced interactions with the industrial reality~~ /TypeScript, enables advanced graph queries for industrial data interactions

Annotation API for auxiliary label data — COGNITE, Oslo, Norway — 08/2021 - 06/2022

- ~~Implemented a REST API to store~~ REST API for storing label information on files within COGNITE~~'~~'s data warehouse
- ~~Went from design to fully productive usage with SLAs in less than a year~~
- ~~Implemented in Python on top of *PostgreSQL* using *SQLalchemy* and *flask*. Flexible annotation type system enabled by *pydantic*~~ Implemented in Python with PostgreSQL, achieved production deployment with SLAs in under a year

Intelligent document scanning tool — COGNITE, Oslo, Norway — 03/2021 - 06/2022

- ~~Contributed to a document scannnig tool that detects relevant fields in scanned forms and automatically extracts their values, significantly reducing the human effort required~~ Document scanning tool using Azure OCR and line detection algorithms to extract fields from scanned forms
- ~~Using Azure OCR to detect text instances together with a line detection algorithm to extract tables and fields . Combined with hand-crafted rules to make the field extraction more robust~~ Significantly reduced manual effort required for document processing

Live execution of detection network in test vehicle — APTIV, Wuppertal, Germany — 11/2020 - 12/2020

- Deployed ~~a 3d~~ 3D bounding box detection network on Nvidia Jetson Xavier hardware
- ~~Optimizations and tweaks to make an automotive detection network fast enough to run live in the test vehicle~~ for live test vehicle execution

Runtime environment for AI algorithms — APTIV, Wuppertal, Germany — 06/2020 - 10/2020

- Runtime environment written in Rust for live execution of AI algorithms in test vehicles ~~for demo purposes~~
- ~~Main contributions: Preprocessing from the raw sensor data into the TensorFlow network input, subsequent postprocessingof the network results into bounding boxes for visualization, as well as abstractions to allow for different combinations of sensors and networks~~ Implemented preprocessing, postprocessing, and abstractions for different sensor/network combinations

~~APTIV, Wuppertal, Germany02/2020 – 03/2020~~

~~Python / Rust tooling to download sensordata and ground truth from a data warehouse and refine it for neural network training~~

~~Sophisticated interpolation algorithm for 3d bounding boxes to arbitrary timestamps~~

~~Using HDF5 as final data exchange format~~ Machine Learning automation using microservices — APTIV, Wuppertal, Germany

- ~~Established a~~ Python microservice framework for ~~the~~ automatic execution of ~~Machine Learning algorithms~~
- ~~Automatic triggering of execution pipelines on trigger events, such as the availability of new data~~ ML algorithms with trigger-based pipelines

Affectiva collaboration - Facial expression detection — Affectiva, Boston, MA — 08/2019

- ~~Short-noticed support of cooperation partner Affectiva in Boston to mitigate risk in a customer project~~
- ~~Made key contributions for deploying a~~ Emergency support for deploying facial expression detection system using TensorFlow and TF-Lite

Product Owner for automotive data warehouse

APTIV, Wuppertal, Germany

02/2019 - 02/2020

- Lead of a Led SCRUM team of 5 developers to establish a data warehouse for automotive sensor data and algorithm results
- Access to automotive driving scenarios for the development of AI-based driver assistance systems
- Based on MEAN stack , hosted in Azure using BlobStorage for larger binary data. Orchestrated using docker-compose
- Featuring a MEAN stack solution with REST API, a Python access client, a frontend with a video playback tool, and full backend test coverage Python client, and video playback frontend hosted in Azure

3D object detection on automotive radar

APTIV, Wuppertal, Germany

12/2018 - 01/2019

- Lead a Led team of 5 engineers for a Deep Learning proof of concept
- Successfully demonstrated an anchor-based CNN-based 3D object detection proof of concept on automotive radar raw data using CNNs data

APTIV, Wuppertal, Germany07/2018 – 08/2018

Development of a tool using C++ and Qt for the recording of sensor data in a test vehicle.

Recording of LiDAR (via UDP), Vehicle host bus and radar detections (via CAN), and radar debug information (via UDP)

Emphasis on correct timestamping of recorded sensor data, such that it can be replayed after recording LiDAR labeling tool

- Work on a web-based Web-based 3D bounding box labeling tool for 3D bounding boxes in LiDAR point clouds using TypeScript and MEAN stack
- Backend development using MEAN stack (MongoDB, Express, Angular, Node.js)
- Main contributions: User and group managementContributed user management, group management, and data upload APTIV, Wuppertal, Germany11/20 – 12/2017
- Simulated an automotive FMCW radar by creating a simple raytracer in Python.
- Used this raytracer to simulate artificical training data for neural networks APTIV, Wuppertal, Germany07/2017 – 10/2017
- Implemented code generator in Matlab to deploy CNNs to a TI embedded chip
- Given a CNN trained in TensorFlow, this generator creates optimized C++ code to execute that CNN on the target platform features

TEACHING

Co-Organizer of the NorwAI 2022 hackathon

NTNU Trondheim, Norway

08/2022 - 10/2022

- Organizing and conducting a Data Science hackathon in Trondheim with Cognite and researchers from NTNU
- Finding a suitable dataset, defining a task, supervising the students during the event, and evaluating the contributions

Lecturer on artificial intelligence in autonomous driving

University of Wuppertal, Germany

10/2020 - 04/2021

- Lecture "Artificial Intelligence Based Sensor Signal Processing for Autonomous Driving" held in collaboration with colleagues from APTIV
- Prepared and held lectures and exercises about Numerical Optimization in Data Science, Support Vector Machines, and Gradient Boosting

Master thesis supervision

APTIV, Wuppertal, Germany

03/2019 - 09/2019

- Supervised a master student on using GANs for automotive data style transfer
- Created artificial LiDAR data by modding the video game GTA: V, then trained a GAN on real LiDAR data to do the domain transform
- Tested and benchmarked this approach with a birds-eye-view 2D object detection model

Bachelor thesis supervision

University of Düsseldorf, Germany

2016

- Supervised a bachelor student on the numerical simulation of magnetic gels

Teaching assistant for theoretical physics lectures

University of Düsseldorf, Germany

2013-2017

- Lectures: Quantum Mechanics and Statistical Mechanics
- Created homeworks and gave exercise classes
- Answered student questions about the lecture topics
- Designed and held oral and written exams

ABOUT ME

Interests I am enthusiastic about AI, tech and science related topics. To follow the recent developments in machine learning, I like to read papers on arXiv and from the ICLR conference and I follow towardsdatascience and the /r/MachineLearning subreddit. To stay on top of new trends in software engineering and science topics, I regularly browse Hacker News. Additionally I like to improve my leadership and organization skills by reading related books.

Activities Sozializing with friends has always been important to me. I am an enthusiastic Pen & Paper gamemaster since 20 years and often meet with friends to indulge together in this hobby. Keeping myself healthy with a good diet and regular exercise is another priority for me. To achieve this, I like to cook quality food with fresh ingredients, and I go running several times a week. To keep myself in shape and the environment clean, I take my racing bike to reach places whenever possible