Dr. Peet Cremer

* 27/01/1988
Transistorfaret 9, 1396 Billingstad, Norway | +47 917 42 339
peet.cremer@gmail.com | PeetCremer | @PeetCremer | Publication list

Experienced Principal Engineer and former Engineering Leader with deep expertise in AI, Machine Learning, and scalable software architecture. Currently leading technical initiatives in AI evaluation and organizational tooling adoption at Cognite. My background combines hands-on engineering excellence (Python, C++, Rust) with proven leadership experience managing teams of up to 18 developers. I bring strategic thinking, data-driven decision making, and a collaborative approach to solving complex technical challenges in industrial AI applications.

WORK EXPERIENCE

Principal Engineer – Atlas AI
COGNITE (Oslo, Norway) 02/2023 - 2/2024

Leading technical initiatives in AI evaluation and organizational tool adoption within Cognite's Atlas AI division. Key focus areas include:

- **AI Evaluation Frameworks:** Architecting and implementing comprehensive evaluation systems to measure performance of Cognite's industrial AI agents and underlying natural language processing tools
- **LLM Benchmarking:** Led creation of benchmark reports comparing various state-of-the-art models (Anthropic, OpenAI, Google, DeepSeek, Mistral) for industrial applications, resulting in data-driven model selection decisions
- **Organizational AI Tooling:** Pioneer work in identifying and procuring productivity-enhancing AI tools (Cursor, Bolt, Claude Code, Gemini Code Assist, MCP servers) for engineering organization
- **Cross-functional Leadership:** Collaborated with Legal, Security, Procurement, and Architecture teams to ensure compliant and secure rollout of AI tools across the organization
- **Knowledge Transfer:** Conducted training sessions and gave presentations at Global Town Halls on AI tool adoption strategies

Senior Director of Engineering
COGNITE (Oslo, Norway) 02/2024 - 2/2025

Advanced engineering leadership role overseeing multiple teams and strategic initiatives across Cognite's engineering organization:

- **Team Leadership:** Managed engineering teams of 10-15 developers focusing on data integration, data connectivity, and AI applications
- **Strategic Hiring:** Led hiring initiative for Cognite's India Center of Excellence, developing staffing plans, job descriptions, interview processes, and managing recruitment pipeline for 20+ engineering roles
- **Product Strategy:** Contributed to product strategy development for Contextualization services at Cognite, aligning technical capabilities with business objectives
- **Organizational Growth:** Provided senior engineering leadership to support Cognite's scaling engineering organization, including culture building and process improvements
- **Cross-functional Collaboration:** People management, product leadership, and technical architecture decisions across multiple product areas

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

Engineering ~~manager of~~ leadership role with significant team growth and dynamic organizational management:

- **Rapid Team Scaling:** Started with 1 team of 5 developers and grew to manage up to 18 developers ~~in~~ across 3 teams ~~, focusing on:~~ within the timeframe, demonstrating rapid organizational scaling capabilities
- **Technical Focus Areas:** Led teams specializing in contextualization of industrial data, data-driven troubleshooting applications, and parsing of engineering diagrams for industrial sites
- ~~data-driven troubleshooting apps~~ **Adaptive Management:** Managed fluctuating team structures with 1 stable core team and 2 dynamic teams, flexibly filling organizational gaps as needed
- ~~Parsing of engineering diagrams for industrial sites~~ **Delivery Excellence:** Maintained high-performing teams while navigating rapid growth and changing organizational needs

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 · Evolutionary algorithms · 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~~ TO AS ~~AN INDIVIDUAL CONTRIBUTOR~~MANAGER OR INDIVIDUAL CONTRIBUTOR

Language Model Finetuning for Industrial Natural Language Querying
COGNITE, Oslo, Norway — 02/2025 - 04/2025

Collaborated on finetuning language models to enhance natural language querying capabilities on Cognite's industrial knowledge graph:

- Created curated datasets of NLQ problems with ground truth answers for training and evaluation
- Implemented model finetuning pipelines to improve performance on domain-specific industrial queries
- Work recognized by CEO in LinkedIn post highlighting customer impact

Comprehensive LLM Benchmark for Industrial AI Applications
COGNITE, Oslo, Norway — 02/2025 - 04/2025

Led comprehensive benchmarking initiative to evaluate state-of-the-art language models for Cognite's Atlas AI platform:

- Designed and executed evaluation framework for Natural Language Querying (NLQ) and Document Question Answering (DQA) on industrial knowledge graphs
- Created hundreds of curated test cases and evaluation infrastructure for models from Anthropic, OpenAI, Google, DeepSeek, and Mistral
- Analyzed performance of both instruction-tuned and reasoning models in agentic industrial applications
- Delivered external benchmark report informing strategic model selection decisions

Enterprise AI Tooling Strategy and Implementation
COGNITE, Oslo, Norway — 03/2025 - 06/2025

Led holistic initiative to identify, evaluate, and deploy productivity-enhancing AI tools across Cognite's engineering organization:

- **Technology Evaluation:** Assessed cutting-edge AI development tools including Cursor, Windsurf, Bolt, Claude Code, Gemini Code Assist, and Model Context Protocol (MCP) servers
- **End-to-End Procurement:** Led purchasing process from evaluation through deployment, working with Legal, Security, Procurement, and Architecture teams
- **Compliance and Security:** Ensured regulatory compliance and implemented security guardrails for enterprise AI tool adoption
- **Change Management:** Conducted training sessions and information sessions to drive effective and secure tool adoption
- **Executive Communication:** Presented findings at Global Town Hall, receiving recognition from CEO in LinkedIn post

Strategic Hiring Initiative for India Center of Excellence
COGNITE, Oslo, Norway — 06/2024 - 12/2024

Led strategic hiring initiative for Cognite's new engineering center in Bengaluru, India:

- **Strategic Planning:** Served on strategic committee to define staffing plan and organizational structure for new engineering center
- **Recruitment Infrastructure:** Designed comprehensive hiring framework including job descriptions, interview processes, take-home assignments, and evaluation criteria
- **Hiring Leadership:** Managed end-to-end recruitment process for 20+ engineering roles, coordinating multiple hiring pipelines and tracking progress against goals
- **Cross-functional Coordination:** Distributed hiring responsibilities across management team and facilitated regular synchronization meetings
- **Organizational Impact:** Contributed to successful launch of India Center of Excellence, as announced in press release

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

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

Data backend to store an industrial knowledge graph
COGNITE, Oslo, Norway — 06/2022 - 08/2022

- Creating a 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

Annotation API to store auxiliary label data on files
COGNITE, Oslo, Norway — 08/2021 - 06/2022

- Implemented a REST API to store 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*

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
- 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

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

- Deployed a 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

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 postprocessing of the network results into bounding boxes for visualization, as well as abstractions to allow for different combinations of sensors and networks

Tooling for neural network training — APTIV, Wuppertal, Germany — 02/2020 - 03/2020

- Python / Rust tooling to download sensor data 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 — 03/2020 - 05/2020

- 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

Deploying a facial expression detection system — 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 facial expression detection system using TensorFlow and TF-Lite

Product Owner for a data warehouse project — APTIV, Wuppertal, Germany — 02/2019 - 02/2020

- Lead of a 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 REST API, a Python access client, a frontend with a video playback tool, and full backend test coverage

3D object detection on automotive radar data — APTIV, Wuppertal, Germany — 12/2018 - 01/2019

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

Automotive recording tool — APTIV, Wuppertal, Germany — 07/2018 - 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 — APTIV, Wuppertal, Germany — 01/2018 - 12/2018

- Work on a web-based labeling tool for 3D bounding boxes in LiDAR point clouds using TypeScript
- Backend development using MEAN stack (MongoDB, Express, Angular, Node.js)
- Main contributions: User and group management and data upload

Simple raytracer to simulate FMCW Radars — APTIV, Wuppertal, Germany — 11/2017 - 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

Automatic code generator for CNNs — APTIV, Wuppertal, Germany — 07/2017 - 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

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