

MOHAMMAD EMAD HAMMAMI

AI Systems Researcher | Federated Learning • Distributed ML • Reliable AI Systems

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emadhammami

PROFILE

AI systems researcher and software engineer with an MSc in Informatics from the University of Oslo. My work focuses on federated learning, distributed machine learning, and communication-efficient AI systems. I design reproducible ML systems and experimental pipelines, bridging research and real-world engineering. I am particularly interested in reliable AI systems, LLM-based architectures, and scalable distributed intelligence.

PUBLICATIONS

Hammami, M. E., Guan, P., Taherkordi, A., Shahraki, A., Lan, D.

AMBIT: An Efficient Pruning Technique in Federated Learning for Edge Computing Systems

IEEE International Conference on Fog and Edge Computing (ICFEC), 2024

- Proposed pruning-based method to reduce communication overhead in federated learning.
- Achieved improved bandwidth efficiency while preserving model accuracy.
- Evaluated performance in distributed edge environments with constrained resources.

Hammami, M. E.

Adaptive Mean Absolute Deviation (AdMAD) Pruning in Federated Learning

Master's Thesis, University of Oslo, 2023

- Designed pruning strategies for communication-efficient distributed learning.
- Investigated trade-offs between model performance and communication cost.

Hammami, M. E. et al.

Byte-Budgeted Update Compression with Error Feedback for Federated Learning

Under Review (2026)

- Developed compression-based update mechanisms under strict communication constraints.
- Focused on reproducibility and performance benchmarking.

OPEN-SOURCE RESEARCH ARTIFACTS

uAMBIT – Hard-Cap Federated Compression for Edge ML

- Developed federated learning system with strict communication budget (0.5 KiB/client/round).
- Implemented compression-aware training pipelines and benchmarking framework.
- Provided reproducible experiments, GitHub repository, and Colab demonstrations.
- Designed evaluation tools for analyzing accuracy-communication trade-offs.

RESEARCH INTERESTS

Federated Learning

Distributed ML

Edge AI

LLM Systems

AI Systems Engineering

Reliable AI

Privacy-Preserving ML

TECHNICAL SKILLS

Python

TensorFlow

Machine Learning

Distributed Systems

Experiment Design

Reproducible Research

CI/CD

Git

Software Testing

RESEARCH HIGHLIGHTS

- IEEE conference publication in federated learning (ICFEC 2024).
- Developed open-source ML systems for edge AI and distributed learning.
- Active collaboration with University of Oslo research group.

EDUCATION

Master in Informatics:
Programming and Systems
Architecture

University of Oslo

2023

Oslo, Norway

- Grade: A
- Thesis: *Federated and Tiny Machine Learning for Edge Computing in Industrial IoT*.
- Contribution: *Adaptive Mean Absolute Deviation (AdMAD) Pruning in Federated Learning*.

SELECTED RESEARCH PROJECTS

Digital Systems Transformation in Large-Scale Banking Systems

University of Oslo

📅 2023

- Studied large-scale digital transformation in a regulated financial environment (DNB).
- Analyzed system architecture evolution, technology adoption, and organizational constraints.

Software Process Improvement for Scalable Systems

University of Oslo

📅 2023

- Developed process improvement strategies based on Agile methodologies and modern software practices.
- Focused on improving reliability, efficiency, and maintainability of complex software systems.

Scrum Methodology Handbook for Engineering Teams

DNB Bank

📅 2021

- Authored internal handbook on Scrum practices for software engineering teams.
- Emphasized coordination, delivery efficiency, and scalable development workflows.

RELEVANT EXPERIENCE

Software Engineer / Scrum Master

DNB Bank

📅 2021–Present

📍 Oslo, Norway

- Developed and maintained production-grade distributed systems in a large-scale banking environment.
- Focused on system reliability, testing strategies, and deployment pipelines.
- Contributed to architecture discussions and cross-team engineering coordination.
- Applied agile methodologies in complex and regulated engineering systems.

Bachelor Project / Scrum Master

Telia

📅 Aug 2020 – May 2021

📍 Oslo, Norway

- Facilitated teamwork and coordination using Scrum practices.
- Contributed to development work using Laravel and Onfido in a collaborative project setting.

Master in Digitalization and Management (ongoing)

University of South-Eastern Norway

📅 2024–Present

📍 Hønefoss, Norway

Bachelor in Informatics: Programming and Systems Architecture

University of Oslo

📅 2025

📍 Oslo, Norway

Bachelor of Engineering in Software Engineering

OsloMet

📅 2026

📍 Oslo, Norway

Bachelor of Information Technology

OsloMet

📅 2021

📍 Oslo, Norway

IT Engineering Studies (NOKUT-approved)

University of Kalamoon

📅 2010–2012

📍 Deir Atiyah, Syria

LANGUAGES

Arabic



English



Norwegian



LINKS

emadhammami.site

github.com/emadhammami

[uAMBIT Repository](#)

REFEREES

Available upon request.