

ÇAĞATAY YILDIZ

PhD · Senior ML Researcher · Research Team Lead

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PROFESSIONAL SUMMARY

Senior ML researcher with 4+ years of postdoctoral experience and 13 publications at top-tier venues (NeurIPS, ICML, ICLR, TMLR, EMNLP). Dual expertise in probabilistic/Bayesian machine learning and LLM continual learning and domain adaptation. Track record of functioning at research team lead level — driving project conception, supervising PhD and MSc researchers, and building applied AI products end-to-end. Seeking senior Research Scientist or ML Lead roles in Germany.

TECHNICAL SKILLS

Languages: Python (expert), Dart/Flutter

ML Frameworks: PyTorch, Hugging Face Transformers,

Distributed Training: OLMo-core, multi-GPU & multi-node setups

Research Areas: Probabilistic ML, Bayesian inference, neural ODEs/SDEs

LLM & NLP: Continued pretraining, domain adaptation, RLHF, RAG

Product / Infra: GDPR-compliant system design, mobile (Flutter)

EXPERIENCE

Postdoctoral Researcher — University of Tübingen

Jun 2022 – Present

Cluster of Excellence "Machine Learning for Science" · Tübingen, Germany

- Led a research program on LLM continual learning and domain adaptation, producing 5 publications including TMLR and EMNLP papers, and an arXiv preprint submitted to a top-tier venue.
- Functioned as de facto team lead: officially advising 1 PhD student (Aalto University) and co-supervising 2 additional PhD researchers; supervised 6 successfully defended MSc theses.
- Co-organized the Scalable Continual Learning for Lifelong Foundation Models Workshop at NeurIPS 2024, coordinating invited speakers, reviewers, and schedule across an international team.
- Co-organized and lectured at the Mathematics of Machine Learning Summer Schools in Turkey (2023–2025), receiving grants for the 2025 edition.
- Represented PhD students and postdocs on the Tübingen AI Center hiring committee, participating in faculty-level evaluation of candidates.

Visiting Research Intern — Bosch Center for AI

Sep 2021 – May 2022

PhD Research Internship · Germany

- Developed and validated latent GP-ODE models for interacting dynamical systems; work published at NeurIPS 2022 as first author.

Visiting PhD Researcher — Uppsala University

Mar 2021 – May 2021

Invited research visit · Uppsala, Sweden

- Collaborated on neural SDE methods; delivered an invited lecture on SDEs and MCMC.

APPLIED PROJECTS

ETQ-AI — LLM-Powered Classroom Feedback App

2024 – 2025

Solo technical lead · End-to-end product ownership

- Designed and built a full-stack mobile application that uses LLMs to collect, process, and surface structured feedback from students to instructors in real time.
- Owned the entire stack: backend API design, LLM prompt engineering and evaluation, GDPR-compliant data handling, and Flutter-based mobile client.

- Conducted user testing sessions and iterated on the product based on instructor and student feedback.

HalloConnect — AI App for Immigrant Integration

2025

Co-lead · Interdisciplinary team project

- Co-led technical and product strategy for an AI application connecting immigrants to local community and cultural resources.
- Responsible for LLM integration architecture, cross-functional team coordination, and GDPR compliance framework.

EDUCATION

PhD, Computer Science — Aalto University, Finland

2017 – 2022

Specialization: Machine Learning · Supervisor: Assoc. Prof. Harri Lähdesmäki

MSc, Computer Engineering — Boğaziçi University, Istanbul

2014 – 2017

Specialization: Machine Learning · Hired as full-time Teaching Assistant during studies

BSc, Computer Engineering — Boğaziçi University, Istanbul

2009 – 2014

SELECTED PUBLICATIONS (13 TOTAL · FULL LIST AT CAGATAYYILDIZ.GITHUB.IO)

Large Language Models & Continual Learning

Yıldız Ç., Ravichandran N., Sharma N., Bethge M., Ermis B. (TMLR 2025). "**Investigating Continual Pretraining in Large Language Models: Insights and Implications.**" *Transactions on Machine Learning Research*. — *First author · Designed experiments, led full project.*

Oncel F., Bethge M., Ermis B., Ravanelli M., Subakan C., Yıldız Ç. (EMNLP 2024). "**Adaptation Odyssey in LLMs: Why Does Additional Pretraining Sometimes Fail to Improve?**" *EMNLP 2024*. — *Corresponding senior author · Discovered core observation, designed experiments, supervised first author.*

Probabilistic Modeling & Dynamical Systems

Yıldız Ç., Heinonen M., Lähdesmäki H. (NeurIPS 2019). "**ODE2VAE: Deep Generative Second Order ODEs with Bayesian Neural Networks.**" *NeurIPS 2019*. — *First author · Invented modelling framework, ran all experiments.*

Yıldız Ç., Kandemir M., Rakitsch B. (NeurIPS 2022). "**Learning Interacting Dynamical Systems with Latent Gaussian Process ODEs.**" *NeurIPS 2022*. — *First author.*

Yıldız Ç., Heinonen M., Lähdesmäki H. (ICML 2021). "**Continuous-Time Model-Based Reinforcement Learning.**" *ICML 2021*. — *First author.*

Hizli C., Yıldız Ç., Bethge M., John ST., Marttinen P. (ICLR 2025). "**Identifying Latent State Transitions in Non-Linear Dynamical Systems.**" *ICLR 2025*. — *Senior author · Built theoretical framework, weekly advising of PhD student.*

Auzina I., Yıldız Ç., Magliacane S., Bethge M., Gavves E. (NeurIPS 2023). "**Modulated Neural ODEs.**" *NeurIPS 2023*. — *Originator of core idea · Advised first author end-to-end.*

AWARDS & RECOGNITION

- NeurIPS Top Reviewer (2019, 2022) · ICLR Highlighted Reviewer (2022) · ICLR Notable Reviewer (2023) · TMLR Expert Reviewer (2025)
- €4,000 research grant from CIMPA (Centre International de Mathématiques Pures et Appliquées) for the Mathematical Foundations of ML Summer School, 2025

COMMUNITY & LEADERSHIP

- Workshop Co-Organizer: Scalable Continual Learning for Lifelong Foundation Models @ NeurIPS 2024
- Summer School Co-Organizer & Lecturer: Mathematics of Machine Learning, Turkey (2023, 2024, 2025)
- Representative: PhD students and postdocs, Tübingen AI Center & Cluster of Excellence (2024–2025)
- Program Committee: Machine Learning Meets Differential Equations Workshop @ ECAI 2024
- Reviewer: NeurIPS, ICML, ICLR, TMLR (2018–present)