ALPER KALLE

Ph.D. Student in Computer Science

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Research Interests: Efficient Deep Learning · Tensor Decomposition · Model Compression · Edge AI

Education

2024 – Present	**Ph.D. in Computer Science**, *CEA (Commissariat à l'énergie atomique) - Paris-Saclay University*
	Thesis: *Tensor Methods for Deep Neural Network Compression*
	○ Developing novel tensor decomposition algorithms for efficient deep learning inference.
2021 – 2023	**Master in Applied Mathematics**, *Toulouse III - Paul Sabatier University*
2017 – 2021	**Bachelor in Mathematics**, *Galatasaray University*

Publications

2025	**A. Kalle**, T. Rudkiewicz, M.O. Ouerfelli, M. Tamaazousti. "Distribution-Aware Tensor Decomposition for Compression of Convolutional Neural Networks". *Advances in Neural Information Processing Systems (NeurIPS)*. **[Code]**
2025	M.R.M. Boudjemaa, **A. Kalle**, X. Mai, J.H.M. Goulart, C. Févotte. "Whitening Spherical Gaussian Mixtures in the Large-Dimensional Regime". *arXiv preprint arXiv:2509.17636*.

Research Experience

Mar – Sep 2023	**Research Intern (Master)**, *IRIT & IMT*, Toulouse
	Topic: *Analysis of tensor decomposition methods for machine learning in the large-data regime.*
	○ Advisors: Henrique Goulart (IRIT) and Xiaoyi Mai (IMT).
Mar – May 2025	**Teaching Assistant**, *Polytech Paris-Saclay*, Paris
	Teaching assistant for the Mathematics 2 course; managed computer labs and student projects.

Skills

Deep Learning	PyTorch, TensorFlow, JAX, Keras
Programming	Python, C++, C#, MATLAB, SQL, Git
Mathematics	Tensor Algebra, Convex Optimization, Stochastic Calculus, High-Dimensional Probability
Languages	Turkish (Native), English (Fluent), French (Fluent), Spanish (Intermediate)

Selected Talks

Oct 2025	**Seminar**, *CEA*, Paris
	Title: *Compression of neural networks by tensor decomposition*
Jun 2023	**Seminar**, *IRIT*, Toulouse
	Title: *Analysis of Tensor-Based Gaussian Mixture Model Estimation*
Feb 2023	**Seminar**, *Paul Sabatier University*, Toulouse
	Title: *Hypothesis Testing on the Quantum Measurements*

Awards & Scholarships

2021 – 2022	**Scholarship of Master Galatasaray**, *Embassy of France in Turkey*
2018 – 2021	**TUBITAK-2205 Excellence Scholarship**, *TUBITAK (Turkey)*
	Merit scholarship for top undergraduate students in exact sciences.

Leadership & Volunteering

2018 – 2020	**Executive Board Member**, *Matematigin Pesinde & Bahar Meetings*, Istanbul
	Edited weekly mathematics bulletins and organized large-scale seminar programs.
2018 – 2019	**General Secretary**, *Mathematics Club, Galatasaray University*, Istanbul
	Editor of the Mathematics Journal and organizer of academic presentations.