Mehmet Emre Akbulut

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RESEARCH INTERESTS

Efficient machine learning, tinyML, neural architecture search, learning representations, interpretability, information theory and machine learning

EDUCATION

• Politecnico di Milano

September 2023 - Present

M.Sc. Computer Science and Engineering

Milan, Italy

- Thesis Title: Input Aware Dynamic Quantization in Deep Neural Networks (Research Proposal, SotA, Presentation)
- Advisor: Manuel Roveri
- **Specialization:** Artificial Intelligence
- Relevant Coursework: Machine Learning, Artificial Neural Networks, Uncertainty in AI, Model Identification, Hardware Architectures for Embedded and Edge AI, Advanced Deep Learning
- GPA: 29.1/30.0, expected 110/110 magna cum laude after thesis

Bogazici University

September 2019 - June 2023

Istanbul, Turkey

B.Sc. Computer Science and Engineering

- Thesis Title: Social Network Analysis on Research
- o Advisor: Suzan Uskudarli & H. Birkan Yilmaz
- Relevant Coursework: Introduction to Artifical Intelligence, Information Retrieval, Signal Processing, Linear Algebra, Probability Theory
- **GPA:** 3.57/4.0, graduated with high honour and thesis award

RESAERCH EXPERIENCE

PoliMi AI-Tech Research Lab, Politecnico di Milano

May 2024 - Present

Research Assistant - Honours Program

Milan, Italy

- Efficient machine learning, exploring pruning, quantization, distillation, and efficient architectures
- Deploying machine learning models into resource constrained devices

SONAR, Bogazici University

September 2022 - June 2023

Thesis Researcher

Istanbul, Turkey

- Analysis of the scholarly network by content aware HITS algorithm using Named Entity Recognition and Knowledge Graphs
- Nanonetworking Research Group, Bogazici University

January 2022 - Sept 2022

Istanbul, Turkey

- Interdisciplinary studies, a bioprinter project in the nanonetworking settings
- The Nanonetworking Research Group (NRG) was founded in 2010 Prof. Tuna Tugcu by to pursue research on nanonetworking and molecular communications.

PROJECTS

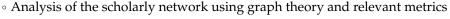
Visit Github for various projects including topics such as dynamic quantization, local RAG, multivariate time-series analysis and more.

• Senior Project: SONAR

Undergraduate Researcher

September 2022 - June 2023

A helpful tool for researchers



 A tool with Graph UI for researchers to explore scholarly network in an efficient way for article recommendations, finding research groups, literature review, etc.

• Instance-Aware Dynamic Neural Network Quantization

2024

Implementation of CVPR 2022 Paper

• Re-implemented the *PyTorch* version of instance aware dynamic neural network quantization. Paper source code is written using Mindspore

• Recommender System for Events of Istanbul: IDIstanbul

September 2021 - February 2022

Event Recommendation Platform, Funded by an Incubation Center

- · A platform crafted to function as a personalized entertainment assistant with the help of machine learning, mainly collaborative filtering
- Seed phase at BTM, one of Istanbul's prominent startup centers. Exited in February 2023

PUBLICATIONS & THESIS

- [1] Mehmet Emre Akbulut and Yusuf Erdem Nacar, 2024, Content Aware Analysis of Scholarly Networks: A Case Study on CORD19 Dataset, Preprint.
- [2] Mehmet Emre Akbulut, Yusuf Erdem Nacar, Suzan Uskudarli and H. Birkan Yilmaz, 2023, Social Network **Analysis on Research**, Bachelor Thesis.

EXTRACURRICULAR

• IEEE Bogazici Student Branch - Vice President

May 2020 - June 2021

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IEEE, Bogazici University

February 2020 - March 2022

Campus Representative

IoT Turkey

• IEEE Turkey SIGHT Group

April 2021

Special Volunteering Group interested in Humanitarian Activites covers the geographical area of the Republic of Turkey

SKILLS

- Technical Languages: MATLAB, PYTHON, C/C++, GOLANG
- Libraries: Pytorch, Numpy, Tensorflow, Tensorflow Lite and Micro, Scikit-learn, Ollama, MLX
- Database Systems & Languages: SQL, Cypher & Neo4J, Cassandra, MongoDB, ElasticSearch

PROFESSONAL EXPERIENCE

• Mindsite *June* 2022 - *September* 2023

Istanbul, Turkey

E-Commerce Data Analysis and Big Data Processing

 TechSign March 2021 - May 2021 Internship

Istanbul, Turkey

Biometric Signature and OCR Team

HONORS AND AWARDS

• Politecnico di Milano Honours Program May 2024

Politecnico di Milano

• Spring '23 Thesis Award

June 2023

Our bachelor thesis and final project was awarded by Bogazici University Computer Engineering Department

· High Honour Award June 2023

Graduated with High Honor and awarded by Bogazici University Faculty of Engineering

• Fall '22 Semester Senior Project Award December 2022

Our senior project was awarded by Bogazici University Computer Engineering Department

January 2022

IEEE SAC Darryl Chong Award

IEEE Bogazici Student Branch was awarded by the IEEE International Student Activities

 Domestic Undergraduate Outstanding Success Scholarship 2019 to 2023

Outstanding Success Scholarship by Istanbul Chamber of Industry Foundation (ISOV)

• University Entrance Exams *June* 2018

Ranked Top 0.01% among 2 million students in the national university entrance exam

 Kadir Has University Summer School Award 2018

Outstanding Success Certificate for Augmented Mechanics and Introduction to Quantum Mechanics in High School Summer School

ADDITIONAL INFORMATION

Languages: Turkish (Native language), English (Full Professional Proficiency), Italian (A2 Level Proficiency) **Interests:** Hiking, Camping and Folk Dances

REFERENCES

manuel.roveri@polimi.it

Professor, Department of Electronics, Information and Bioengineering

Politecnico di Milano

• Suzan Uskudarli, Ph.D.

• Manuel Roveri, Ph.D.

suzan.uskudarli@bogazici.edu.tr

Assistant Professor, Computer Engineering Department

Bogazici University

• H. Birkan Yilmaz, Ph.D.

birkan.yilmaz@bogazici.edu.tr

Assistant Professor, Computer Engineering Department

Bogazici University