Mehmet Emre Akbulut

+39-350-925-1953 | mehmetemre.akbulut@mail.polimi.it | mehmetemreakbulut.github.io | mehmetemreakbulut

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*
  B.Sc. Computer Science and Engineering Istanbul, Turkey
  - **Thesis Title:** Social Network Analysis on Research
  - **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*
  Undergraduate Researcher 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** *September 2022 - June 2023*
  A helpful tool for researchers [ ]
  - Analysis of the scholarly network using graph theory and relevant metrics
  - 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*
IEEE, Bogazici University [🌐]
• **IoT Turkey** *February 2020 - March 2022*
Campus Representative [🌐]
• **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*
Istanbul, Turkey Internship
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 [🌐]
• **IEEE SAC Darryl Chong Award** *January 2022*
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, Ph.D.** *manuel.roveri@polimi.it*
Professor, Department of Electronics, Information and Bioengineering Politecnico di Milano
• **Suzan Uskudarli, 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