

Mehmet Yiğit Balık

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📄 Mehmet Yigit Balık

🐙 YigitBalik



Education

- **Aalto University** Espoo, Uusimaa, Finland
Ph.D. in Machine Learning 06 2025 – 06 2029
- **Aalto University** Espoo, Uusimaa, Finland
M.Sc. in Machine Learning, **GPA - 5/5** ☑
08 2023 – 06 2025
 - Granted 100% Scholarship.
 - Thesis: *Bayesian Basis Function Approximation for Scalable Gaussian Process Priors in Deep Generative Models.* ☑
- **Istanbul Technical University** Istanbul, Turkey
B.Sc. in Computer Engineering, **GPA - 3.91/4** ☑
08 2019 – 06 2023
 - Ranked **3rd** at the faculty **4th** at the university. ☑
 - Graduation Project: *Interpretable Deep Learning for Myocardial Infarction Detection from ECG Signals.* ☑

Experience

- **Aalto University** ☑ Espoo, Uusimaa, Finland
Researcher 06 2024 – Present
 - Conducting research on **efficient and interpretable Gaussian process prior generative models** under **Dr. Harri Lähdesmäki** in the **Computational Systems Biology Research Group** ☑ .
- **Aalto University** ☑ Espoo, Uusimaa, Finland
Teaching Assistant 01 2024 – 01 2025
 - Software Architectures (Fall '24): Graded assignments and provided detailed feedback.
 - Methods of Data Mining (Spring '24): Graded assignments and exams, led discussions.
- **Predictive Intelligence & Medical Imaging Laboratory** ☑ Istanbul, Turkey
Undergraduate Student Researcher 02 2022 – 09 2023
 - Worked on electrocardiogram signals using **explainable deep learning** models under the supervision of **Dr. İlkey Öksüz.**
 - **Collaborated** with four cardiologists to validate our outcomes.
 - Developed **end-to-end** deep learning model and application for medical practitioners.
 - Achieved **98.66%** F1 score on PTB-XL dataset in the detection of myocardial infarction.
 - Actively contributed to weekly **journal club** meetings.
- **Brain And Signal Research & Analysis Laboratory** ☑ Istanbul, Turkey
Undergraduate Student Researcher 06 2022 – 10 2022
 - Investigated the reproducibility of **federated graph neural networks** on medical datasets under the supervision of **Dr. Islem Rekik.**
 - Published paper was **shortlisted** for the **best paper award** (PRIME MICCAI 2022).
- **Delivers AI** ☑ Istanbul, Turkey
Software Engineering Intern 08 2021 – 09 2021
 - Contributed to Robot Management Application by using **ReactJS** and **.NET.**
- **OBSS Technology** ☑ Istanbul, Turkey
Software Engineering Intern 07 2021 – 08 2021
 - Developed a **MVC** based full-stack web app using **Java Spring Boot, Hibernate, React** and **MySQL.**
 - My internship project ranked among the **top three** out of 40 internship projects.

Skills

Coding  Python, C, C++, Java, JavaScript, SQL, NoSQL
Technologies  Linux, React, Spring, Flask, TensorFlow, PyTorch, ScikitLearn, Git

Research Publications

- 1 M. Y. **Balık**, M. Sinelnikov, P. Ong, and H. Lähdesmäki, “Bayesian basis function approximation for scalable gaussian process priors in deep generative models,” in *Forty-second International Conference on Machine Learning*, 2025.
- 2 T. Tanyel, S. Atmaca, K. Gökçe, M. Y. **Balık**, A. Güler, E. Aslanger, and İ. Öksüz, “Interpretable ecg analysis for myocardial infarction detection through counterfactuals,” *Biomedical Signal Processing and Control*, vol. 102, p. 107 227, 2025.
- 3 M. Y. **Balık**, K. Gökçe, S. Atmaca, E. Aslanger, A. Güler, and İ. Öksüz, “Interpretable deep learning for myocardial infarction detection from ecg signals,” in *2023 31st Signal Processing and Communications Applications Conference (SIU)*, IEEE, 2023, pp. 1–4.
- 4 M. Y. **Balık**, A. Rekik, and I. Rekik, “Investigating the predictive reproducibility of federated graph neural networks using medical datasets,” in *Predictive Intelligence in Medicine: 5th International Workshop, PRIME 2022, Held in Conjunction with MICCAI 2022, Singapore, September 22, 2022, Proceedings*, Springer, 2022, pp. 160–171.

Volunteer Experience

-  **Slush** Helsinki, Finland
Badge Claim Volunteer  11 2023 – 11 2023
 - Helped attendees to register for the event and prepare their badges.
-  **ITU ACM Student Chapter** Istanbul, Turkey
Administrative Board Member and Educational Instructor 08 2021 – 04 2023
 - Helped the organization of an algorithm competition  that received **1053** applications.
 - **Instructed** C programming course  to nearly **40** students in the online sessions.
 - Helped the foundation of the algorithm team and mentored 12 students.
 - Prepared algorithm homeworks.

Projects

-  **Real-Life MI Detection System**  05 2023
 - Implementation and application of B.Sc. graduation project.
 - Easy to use app for cardiologists to obtain interpretable classification from ECG reports.
 - Model implemented in **TensorFlow**.
 - Application developed using **Flask** and **JavaScript**.
-  **EventWise**  12 2022
 - A complete mobile application that allows people to manage event groups.
 - Developed the backend and database operations using **Spring Boot**, **Hibernate** and **AWS** in a **four-person team**.
-  **Federated Reproducibility**  09 2022
 - Implemented in **PyTorch Geometric**.
 - Connectomic and biomedical image datasets are used.

Certificates

-  **Inzva Algorithm Competition Summer Camp Participation**  06 2022
-  **Inzva Algorithm Program '21-22 Spring Participation**  04 2022
-  **Inzva Algorithm Competition Winter Camp Participation**  02 2022