Beyza KAYA

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OBJECTIVE

To pursue doctoral research in bioinformatics, focusing on the application of artificial intelligence and computational biology to genomic data analysis, while developing advanced expertise in modeling complex biological systems.

EDUCATION

ÖZYEĞİN UNIVERSITY - Istanbul, TURKEY (2024 - Present)
Graduate School of Engineering and Science - Master's in Artificial Intelligence
Honors: 100**%** Performance Scholarship **Cumulative GPA**: 4.00/4.00

ÖZYEĞİN UNIVERSITY - Istanbul, TURKEY (2019 - 2024)
Faculty of Engineering - Department of Industrial Engineering – Completed in 3.5 years
Department of Computer Science Engineering (Double Major)
Honors: 50% Performance Scholarship **Cumulative GPA**: 3.38/4.00

PAMUKKALE EGITIM VAKFI HIGH SCHOOL - Denizli, TURKEY (2015 - 2019)

PROJECTS & RESEARCH STUDIES

ÖZYEĞİN UNIVERSITY - Istanbul, TURKEY (2025-Present)
Position: Research Assistant
Research Project: ProteinGLM — Multi-Task Learning with Protein Language Models (In Progress)

- Designing a generalized multi-task learning framework for protein sequence modeling using ProtBERT as a shared encoder to jointly predict multiple biologically relevant downstream tasks.
- Implementing parameter-efficient fine-tuning via LoRA to enable scalable adaptation of large protein language models across tasks with minimal task-specific parameters.
- Exploring semantic prompting and task-conditioning strategies to teach the shared model task-specific objectives while preserving shared representations.
- Source code available at: https://github.com/beyzoskaya/PGM-TL

ÖZYEĞİN UNIVERSITY - Istanbul, TURKEY (2024-Present)
Position: Research Assistant
Research Paper: "Temporal Expression Prediction by Integrating Genome Dynamics via Spatio-temporal GNNs" (Under Review)
Authors: Beyza Kaya, Emre Sefer

- Proposed STEPmr and STEPmi, two spatio-temporal graph neural network models to predict mRNA and miRNA expression dynamics over time.
- Integrated Hi-C–derived spatial gene interaction features with temporal expression profiles to model gene regulatory dependencies.
- Analyzed gene ontology and biological pathway enrichments to interpret model predictions, identifying gene groups related to signaling, transcriptional regulation, and structural organization as key contributors to model behavior.
- Source code available at: https://github.com/seferlab/temporalgene

ÖZYEĞİN UNIVERSITY - Istanbul, TURKEY (2024-Present)
Position: Research Assistant
Research Paper: "GAT-HiC Efficient Reconstruction of 3D Chromosome Structure via Graph Attention Neural Networks" (Accepted by IEEE Transactions on Computational Biology and Bioinformatics)
Authors: Beyza Kaya, Emre Sefer

- Developed GAT-HiC, a novel graph neural network model combining Node2vec and graph attention mechanisms to predict 3D chromsome structures.
- Designed specialized loss functions to enhance generalization tasks across diverse species and datasets.
- Validated model performance across three Hi-C interaction datasets, demonstrating generalizability compared to existing methods.
- Source code available at: https://github.com/beyzoskaya/GAT-HiC

ÖZYEĞİN UNIVERSITY - Istanbul, TURKEY (2023 - 2024)
Position: Senior Design Project Computer Science

- Designed a generative framework for producing high-quality and stylistically rare NFT images using Stable Diffusion guided by reinforcement learning.
- Defined a rarity-aware reward function and integrated it into a PPO-based reinforcement learning pipeline to promote rare visual attributes while preserving prompt fidelity.

- Balanced rarity maximization and visual coherence through KL-regularized policy updates, enabling controlled exploration of the generative space.
- Trained diffusion models on large-scale NFT image datasets and evaluated generation quality under both in-domain and out-of-domain prompts, demonstrating robustness to non-NFT textual inputs.
- Source code available at: https://github.com/seferlab/diffnftgen

ADEL KALEMCILIK - Istanbul, TURKEY (2022)
Position: Senior Design Project Industrial Engineering

- Collaborated with a multidisciplinary team of Industrial Engineering students, an academic supervisor, and industry engineers from ADEL Kalemcilik on a real-world manufacturing optimization project.
- Collected and analyzed production line data through on-site observations and process documentation to model the end-to-end fabrication workflow.
- Designed and implemented a discrete-event simulation model using Arena to identify bottlenecks and inefficiencies in the production line.
- Evaluated alternative process configurations and operational scenarios through simulation experiments.

TEACHING & STUDENT MENTORSHIP

Teaching Assistantships

ÖZYEĞİN UNIVERSITY - Istanbul, TURKEY (2024-Present)
Position: Teaching Assistantships
CS 201 – Data Structures and Algorithms

- Assisted weekly laboratory sessions by answering students' questions on data structures and algorithm implementation.
- Graded midterm and final examinations, ensuring consistency and fairness in evaluation.

ÖZYEĞİN UNIVERSITY - Istanbul, TURKEY (2024-Present)
Position: Teaching Assistantships
CS 104 – Introduction to Programming (Python)

- Led weekly interactive lab sessions, guiding students through hands-on programming exercises.
- Conducted live coding and problem-solving sessions, explaining core programming concepts and best practices.
- Supported students individually during labs to reinforce understanding of course material.

ÖZYEĞİN UNIVERSITY - Istanbul, TURKEY (2024)
Position: Teaching Assistantships
CS 333 – Analysis of Algorithms

- Graded homework assignments and term projects for undergraduate students.
- Evaluated algorithmic correctness, complexity analysis, and clarity of technical explanations.

Undergraduate Project Mentorship

Senior Design Project – DeepAllergen: Deep Learning–Based Identification of Allergenic Proteins (In Progress)
Position: Research Mentor

- Supervised undergraduate Computer Science students on a senior design project focused on allergen prediction from protein sequences.
- Guided students in problem formulation, dataset preparation, model architecture design, and experimental evaluation.
- Provided mentorship on deep learning methods for biological sequence modeling and scientific reporting.

Senior Design Project – Protein Allergen Classification via Graph-Based Modeling (In Progress)
Position: Research Mentor

- Supervised undergraduate Computer Science students on a senior design project focused on graph-based approaches for protein allergen classification.
- Advised students on graph modeling of biological data, feature engineering, and model evaluation strategies.

EXPERIENCE

DELTAV SPACE TECHNOLOGIES - Istanbul, TURKEY (07/2023 - 08/2023)
Position: Intern, Project Management
- Analysed risk accordance with standards
- Planned project with detailed excel project for automation
- Predicted GPS latitude-longitude over IMU/ GPS data via Tensorflow and Keras

UP SCHOOL - Istanbul, TURKEY (11/2022 - 12/2022)
Position: Intern, Social Media Organizer
- Shared daily posts, videos and announcements on social media
- This internship was part of the Young Guru Academy's initiatives

SNI TECHNOLOGY - Istanbul, TURKEY (06/2022 - 08/2022)
Position: Intern, Java Developer
- Observed reflections of security systems on e-archive billing applications with Spring Framework
- Used the Spring Framework for email verification and wrote register services

POILABS - Istanbul, TURKEY (6/2022 - 10/2022)
Position: Intern, Backend Developer
- Wrote newly defined JavaScript features for hardware to use in shopping centers
- Participated project meetings on the integration of the company device for new airport

VOLUNTARY ACTIVITIES

YOUNG GURU ACADEMY - Istanbul, TURKEY (2019 - 2021)
Position: Project Leader
- Led “Develop Business Model" sessions for 5th & 6th grade students to support their development
- Participated in camps on leadership, teamwork, communication, problem-solving, decision-making.

Position: Science Activities Volunteer
- Organized sessions with elementary school students in village schools with no access to education.
- Utilized "Twin" science kits and conducted experiments in groups.

Position: Summit Volunteer
- Dealt with the speakers and attendees and took part in various preparations during the summit.
- Produced creative content and created videos for YGA’s Instagram and TikTok accounts

SKILLS & CERTIFICATES

COMPUTER SKILLS
- MS Office (Word, Excel, Power Point)
- Java (Intermediate)
- C++ (Intermediate)/C (Intermediate)
- Spring Framework (Intermediate)
- Tensorflow (Intermediate)
- PyTorch (Intermediate)
- Python (Intermediate)

LANGUAGE SKILLS
- Written and oral fluency in English

CERTIFICATES
PyTorch for Deep Learning Bootcamp

EXTRACURRICULAR ACTIVITIES

- Member, Ozyegin University Google Developer Club (2020 - 2023)
- Member, Ozyeğin University SAS Club (2019 - 2021)
- Member, Ozyeğin University Business Club (2019 - 2021)
- Member, Ozyeğin University Operations Research Club (2019 - 2021)
- Member, Ozyeğin University Dance Club (2019 - 2020)
- Volleyball: Denizli Belediyespor Club Volleyball Team player (2013 - 2019)

PERSONAL INFORMATION

Birth Date: 06/06/2001
Driver’s License: B Class

REFERENCES

Available upon request