Yasin Tepeli

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My research interests lie in developing and studying AI methods to model complex biological systems, with a focus on oncology. My current work centers on therapeutic-target discovery and patient stratification for targeted cancer therapy, alongside diagnosing and mitigating bias in machine-learning models. Methodologically, I employ graph-based modeling and multi-omics integration across oncology applications, and address core ML challenges, selection bias and distribution shift, to deliver robust, translational results.

EXPERIENCES

DELFT UNIVERSITY OF TECHNOLOGY — Delft, NL
PhD / Postdoc Researcher, Delft Bioinformatics Lab — Sep 2020–present
- Developed computational tools for targeted cancer therapy: novel synthetic-lethal targets and patient stratification.
- Characterized selection bias in datasets/ML and proposed methods to mitigate it using semi-supervised learning.
- Supervised BSc , MSc , and PhD projects on DNA repair deficiency, survival modelling, bias mitigation, and mutational signatures.

INSTITUTE OF HUMAN TECHNOPOLE — Milan, IT
Visiting PhD Researcher, Computational Biology Research Center — Sep 2023–Jan 2024
- Built a framework to stratify oncogene-addicted cohorts by drug response.
- Prioritized synthetic-lethal gene pairs and co-designed validation experiments.

SABANCI UNIVERSITY — Istanbul, TR
Research/Teaching Assistant, Computer Science & Engineering — Sep 2018–Sep 2020
- Identified cancer subgroups via functional graph kernels on multi-omics.
- Predicted gene loss-of-function and essentiality using graph embeddings.
- TA for Artificial Intelligence, Algorithms, Data Science, and Machine Learning.

EPITA — Paris, FR
Erasmus Exchange, ME in Computer Engineering — Sep 2016–Feb 2017

HAVELSAN — Ankara, TR
Summer Intern, Big Data Department — Jun 2017–Aug 2017
- Built an ELK-based log-analysis dashboard (Elasticsearch, Logstash, Kibana).
- Generated word-embedding vectors from English Wikipedia (web crawling, GloVe).

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Summer Intern, Web Development — Jun 2016–Aug 2016
- Built a web-based hotel management system (full stack: HTML, JavaScript, C#).

EDUCATION

PHD , DELFT BIOINFORMATICS LAB, DELFT UNIVERSITY OF TECHNOLOGY — Delft, NL
Computational Tools for Optimizing Targeted Cancer Treatments and Addressing Bias with J.P. de Gonçalves. — Sep 2020–Jun 2025

MSC (HIGH HONORS), COMPUTER SCIENCE & ENGINEERING, SABANCI UNIVERSITY — Istanbul, TR
Discovering Cancer Patient Subgroups with Functional Graph Kernels with Ö. Taştan Okan. — Sep 2018–Sep 2020

BSC (HIGH HONORS), COMPUTER SCIENCE, BILKENT UNIVERSITY — Ankara, TR
AeroCast - Forecasting Flight Prices for Fixed Travel Days with Ç. Gündüz Demir. — Sep 2013–Sep 2018

SKILLS

Machine Learning scikit-learn, Keras, TensorFlow
Programming Python, R, MATLAB, C++, HTML, JavaScript, Bash, LaTeX
Software Linux, Git, Adobe Illustrator, Microsoft Office, Gurobi, MOSEK
Languages Turkish (native), English (fluent), Dutch (B1)

PUBLICATIONS & PREPRINTS

P8 **ELISL: early–late integrated synthetic lethality prediction in cancer** 2024
Y. I. Tepeli, C. Seale, J. P. Gonçalves. *Bioinformatics*, 40(1)

P7 **SNMF: Integrated Learning of Mutational Signatures and Prediction of DNA Repair Deficiencies** 2024
S. Goossens, C. Seale, J. P. Gonçalves, **Y. I. Tepeli**. *bioRxiv*

P6 **Metric-DST: Mitigating Selection Bias Through Diversity-Guided Semi-Supervised Metric Learning** 2024
Y. I. Tepeli, M. J. de Wolf, J. P. Gonçalves. *arXiv*

P5 **DCAST: Diverse Class-Aware Self-Training Mitigates Selection Bias for Fairer Learning** 2024
Y. I. Tepeli, J. P. Gonçalves. *arXiv*

P4 **A Metagenomic Study of Antibiotic Resistance Across Diverse Soil Types and Geographical Locations** 2024
S. Pillay, **Y. I. Tepeli**, P. van Lent, T. Abeel. *bioRxiv*

P3 **Overcoming selection bias in synthetic lethality prediction** 2022
C. Seale, **Y. I. Tepeli**, J. P. Gonçalves. *Bioinformatics*, 38(18):4360–4367

P2 **GEGE: Predicting Gene Essentiality with Graph Embeddings** 2022
H. I. Kuru, **Y. I. Tepeli**, Ö. Taştan. *Düzce University Journal of Science and Technology*, 10(1):88–97

P1 **PAMOGK: a pathway graph kernel-based multiomics approach for patient clustering** 2020
Y. I. Tepeli, A. B. Ünal, F. M. Akdemir, Ö. Taştan. *Bioinformatics*, 36(21):5237–5246

TALKS & CONFERENCES

Leiden Computational Biology Center, Leiden, Netherlands. *Invited talk (P5, P6).* 2025
BYTE, Utrecht, Netherlands. *Invited Talk.* 2024
Human Technopole PhD Symposium, Milan, Italy. *Talk (P8).* 2024
BioSB, Egmond aan Zee, Netherlands. *Talk (P5).* 2024
BioSB, Egmond aan Zee, Netherlands. *Poster (P6).* 2023
ECCB, Barcelona, Spain. *Poster (P8).* 2022
BioSB, Lunteren, Netherlands. *Talk (P8).* 2022
BioDay, Delft, Netherlands. *Poster (P8).* 2022
OxfordML Summer School — Health Track, Oxford, UK. *Attended.* 2022
HIBIT, Istanbul, Turkey. *Poster & pitch (P1).* 2020
MLFPM Summer School, Basel, Switzerland. *Attended.* 2019
FENS Research Days, Sabanci University, Turkey. *Poster (P2).* 2019

AWARDS, HONORS, AND SCHOLARSHIPS

Delft Bioinformatics Lab — Social Cohesion Award. 2024
TU Delft BioDay — Best Poster Award. 2022
HIBIT — 3rd Best Poster & Pitch. 2020
TUBITAK BİDEB — MSc 2210 National Scholarship. 2018
Bilkent University — BSc Comprehensive 100% Education Scholarship. 2013

OTHER UNPUBLISHED PROJECTS

Uncovering and Experimentally Validating Potential Gene Interactions for Cancer 2024
- Prioritizing computationally derived potential synthetic lethal gene pairs and validating them in drug screens.

Early Detection of Self-harm on Social Media 2019
- Identified at-risk users from Reddit posts using classical ML and deep learning.

Sentiment Analysis of Turkish Tweets 2019
- Classified sentiment (positive/neutral/negative) using preprocessing, word vectors, RNNs, and LSTMs.

Detecting BRCA1 Loss of Function via Gene Alterations 2019

- Predicted BRCA1 loss of function using ML, Node2Vec, protein structures, and networks.

Animal Voice Recognition 2017

- Extracted features with warbleR/seewave and trained SVM, Random Forest, and neural networks.

INTERESTS

Community engagement Coordinated student-led retreats and volunteered initiatives (2023–present)

Hobbies Cycling, running, Padel; photography