

ORHAN BELLUR

Computational Biologist | Multi-Omics Modeling for Disease Biology

Computational biologist focused on systems-level and multi-omics modeling of disease biology. Experienced in analyzing and integrating large-scale transcriptomic and proteomic data with network-based and mechanistic models, developing reproducible computational workflows, and translating biological complexity into quantitative representations. Actively building expertise in machine learning methods for high-dimensional biological data, with a strong interest in predictive modeling of cell and tissue states.



EDUCATION

present
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2022

- **Ph.D., Computational Biology**
Technical University of Munich 📍 Munich, Germany

- Thesis: A systems multi-omics approach to in silico drug repositioning in Alzheimer's disease
 - Advisor(s): Collaborating groups at Helmholtz Munich and TUM

2021
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2019

- **M.Sc., Bioinformatics and Systems Biology**
Gebze Technical University 📍 Kocaeli, Turkey

- GPA: 3.79/4.00
 - Thesis: Reconstruction and transcriptome-based analysis of rat brain-specific genome-scale metabolic network model for Parkinson's disease

2015
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2011

- **B.Sc., Molecular Biology and Genetics**
Bilecik Şeyh Edebali University 📍 Bilecik, Turkey

- GPA: 3.44/4.00
 - Thesis: Transcriptomic analysis of abiotic stress pathways in *A. thaliana*

RESEARCH EXPERIENCE

present
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2022

- **Ph.D. Researcher**
Helmholtz Munich @ Institute of Computational Biology 📍 Munich, Germany

- Developed signature- and network-based drug repurposing pipelines for Alzheimer's disease
 - Built R packages & Shiny apps for drug-target and network visualization
 - Integrated multi-omics for biomarker discovery in neurodegeneration

2022
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2019

- **Graduate Researcher**
Gebze Technical University 📍 Kocaeli, Turkey

- Mapped Parkinson's transcriptomes onto genome-scale metabolic networks
 - Performed FBA/pFBA/LseiFBA, differential expression, pathway enrichment
 - Identified metabolic biomarkers and repurposing candidates

CONTACT

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KEY EXPERTISE

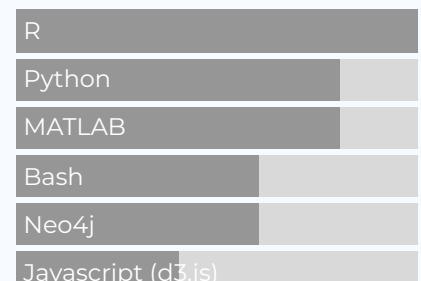
⌚ Computational Modeling of Disease Biology: In silico drug repurposing, target prioritization, and mechanistic modeling.

☒ Multi-Omics Data Analysis & Integration: Bulk & single-cell transcriptomics and proteomics

⚡ Reproducible Analytics & Tools: Scalable, reproducible R / Python pipelines. Interactive Shiny applications for large datasets.

🕒 Systems & Network Biology: Disease networks and genome-scale metabolic modeling.

PROGRAMMING SKILLS



- 2019 | 2018
- **Computational Chemistry Researcher**
Acıbadem Mehmet Ali Aydınlar University
• Performed molecular dynamics simulations (NAMD)
• Designed antimicrobial polymer mimetics computationally
- 2017 | 2016
- **Research Intern – Computational Evolutionary Biology**
Middle East Technical University
• Analyzed transcription factor binding sites functioning in testis evolution
- 2014
- **Genomics Lab Intern**
Sabancı University
• Benchmarked genome-assembly methods
• Performed comparative genomics analyses

TEACHING EXPERIENCE

- 2021 | 2020
- **Undergraduate Mentor / Lab Assistant**
Gebze Technical University
• Assisted students with computational biology workflows

PEER-REVIEWED PUBLICATIONS

- 2025
- **A cognitive resilience gene expression signature in excitatory intratelencephalic cortical neurons**
LA Fish ... O. Bellur, Alzheimer's & Dementia
- 2025
- **Interrogating conserved transcriptomic signatures of cognitive resilience in the frontal cortex**
LA Fish ... O. Bellur, Alzheimer's & Dementia
- 2023
- **In silico prioritization of drug repositioning candidates for Alzheimer's disease using signature search meta-analysis**
O. Bellur et al., Alzheimer's & Dementia
- 2023
- **Brain-wide transcriptome-based metabolic alterations in Parkinson's disease: human inter-region and human-experimental model correlations**
R. Odongo, O. Bellur et al., Molecular Omics
- 2022
- **Conserved cell-type specific signature of resilience to Alzheimer's disease nominates role for excitatory intratelencephalic cortical neurons**
M.A. Telpoukhovskaia ... O. Bellur, bioRxiv

POSTERS AND PRESENTATIONS

- 2025
- **Signature- and Network-Based In Silico Discovery of Disease-Modifying Drugs for Alzheimer's Disease.**
Oral presentation, 11th Grainau Workshop of Genetic Epidemiology

- 2023
- In silico prioritization of drug repositioning candidates for Alzheimer's disease using signature search meta-analysis.
Poster presentation, Alzheimer's Association International Conference  Amsterdam, Netherlands
- 2021
- Reconstruction and transcriptome-based analysis of rat brain metabolic network for Parkinson's disease.
Poster presentation, 14th International Symposium on Health Informatics and Bioinformatics (HIBIT)  Ankara, Turkey
- 2021
- Molecular characterization of in vivo and in vitro models of Parkinson's disease by mapping transcriptome data on genome scale metabolic networks.
Poster presentation, Gebze Technical University Graduate Research Symposium  Kocaeli, Turkey