

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



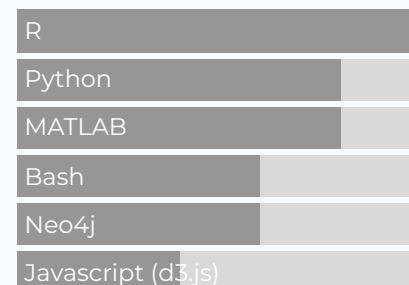
CONTACT

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



TEACHING EXPERIENCE

- 2021
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2020
- **Undergraduate Mentor / Lab Assistant**
Gebze Technical University
 · Assisted students with computational biology workflows
 📍 Kocaeli, Turkey



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
 📍 Grainau, Germany

- 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