

Rıza Özçelik

Ph.D. candidate, Eindhoven University of Technology

Last updated: January 5, 2023

Eindhoven, The Netherlands

✉ r.ozcelik@tue.nl

📄 rizaozcelik.github.io

Education

- 03.2022– : **Ph.D.**, *Biomedical Engineering, Eindhoven University of Technology, The Netherlands.*
- 2018–2021: **M.Sc.**, *Computer Engineering, Boğaziçi University, Turkey.*
GPA: 3.94/4.00. Thesis: Biomolecular language processing for drug - target affinity prediction
- 2014–2018: **B.Sc.**, *Computer Engineering, Boğaziçi University, Turkey.*
GPA: 3.57/4.00 (High Honor). Thesis: Disease Classification based on Genomic Data with Machine Learning

Employment

- 06.2021 – 12.2021: **Research Intern, IBM Research, Zurich.**
 - Created a natural language-driven pipeline to create application flows in IBM's AppConnect. The pipeline relies on **language semantics to match entities** in user utterances with the concepts in a knowledge graph and has a **type-ahead** feature;
 - Created a **link prediction** model to represent otherwise hidden semantic relations in **knowledge graph**;
 - Developed programming interfaces to **feed** above-mentioned systems with **live data**;
 - Selected as one of 5 Great Minds Interns among 50 (after pre-selection) applicants.
- 02.2019 – 12.2021: **Research & Teaching Assistant, Boğaziçi University, Istanbul.**
 - Led and participated in research studies on **machine learning, computational drug discovery, Turkish natural language processing**, and **biological text mining**. The studies resulted in novel machine learning approaches for binding affinity prediction, first large-scale Turkish NLI data sets and representations, and an online search engine for COVID-19. The results are **published in top-tier conferences**;
 - Significantly contributed to an accepted **research grant proposal** on computational drug discovery to The Scientific and Technological Research Council of Turkey (TUBITAK; $\approx 10\%$ acceptance rate);
 - Instructed problem sessions with authentic material, coordinated undergraduate teaching assistants, designed and graded assignments/term projects, and organized engaging and fun events (meme contests, coding parties, and movie-themed assignments) in several courses. The students were delighted: **they donated 125 saplings** on behalf of the teaching staff and over 15% of them included the phrase **best TA ever** in their verbal feedback.
- 12.2018–6.2019: **Research Assistant, TUBITAK, Istanbul.**
 - Designed and developed web applications that enabled smooth traversal of Turkish WordNet (KeNet), and demonstrated an **open-source** Turkish NLP library – nlptoolkit, in a team;
 - **Published and presented** the web applications in Turkish NLP oriented conferences;
 - Contributed to documentation of **open-source** Turkish WordNet and nlptoolkit repositories.
- 7.2018–12.2018: **Data Scientist, ING Turkey, Istanbul.**
 - **Formulated autonomous branch cash management system development** as a prediction problem in a large and interdisciplinary environment;
 - Prepared and presented insightful data analysis reports and used the results to **implement time-series clustering models**.
- 9.2015–6.2018: **Undergraduate Teaching Assistant, Boğaziçi University, Istanbul.**
 - Designed and graded assignments **joyfully received by students**. Instructed additional sessions and established one-to-one communication channels to help students in Introduction to Programming, Data Structures & Algorithms and Machine Learning courses.

Publications

- **Özçelik, Rıza**, Derek van Tilborg, Jose Jiménez-Luna, and Francesca Grisoni. "Structure-based drug discovery with deep learning." *arXiv preprint arXiv:2212.13295*, 2022.
- Büşra Temizer, Asu, **Rıza Özçelik**, Taha Koulani, Elif Ozkirimli, Kutlu Ulgen, Nilgun Karalı, and Arzucan Özgür. "Interpreting Chemical Words of a Data-driven Segmentation Method as Protein Family Pharmacophores and Functional Groups." *arXiv preprints, arXiv-2210*, 2022.
- **Özçelik, Rıza**, Alperen Bağ, Berk Atıl, Melih Barsbey, Arzucan Özgür, and Elif Özkırımlı. "DebiasedDTA: A Framework for Improving the Generalizability of Drug-Target Affinity Prediction Models." *arXiv preprint arXiv:2107.05556*, 2021.
- **Özçelik, Rıza**, Hakime Öztürk, Arzucan Özgür, and Elif Ozkirimli. "ChemBoost: A chemical language based approach for the prediction of protein - ligand binding affinity." *Molecular Informatics* 40.5, 2000212, 2021.
- Budur, Emrah, **Rıza Özçelik**, Tunga Güngör, and Christopher Potts. "Data and Representation for Turkish Language Inference." *Proceedings of the 2020 Conference on Empirical Methods in Natural Language Processing (EMNLP)*, Pages 8253-8267, 2020.
- Köksal, Abdullatif, Hilal Dönmez, **Rıza Özçelik**, Elif Ozkirimli, and Arzucan Özgür. "Vapur: A Search Engine to Find Related Protein-Compound Pairs in COVID-19 Literature." *Proceedings of the 1st Workshop on NLP for COVID-19 (Part 2) at EMNLP 2020*.
- **Özçelik, Rıza**, Gökçe Uludogan, Selen Parlar, Özge Bakay, Özlem Ergelen and Olcay Taner Yıldız. "User Interface for Turkish Word Network KeNet." *Signal Processing Applications*, 2019.
- Uludoğan, Gökçe, **Rıza Özçelik**, Selen Parlar, Gökhan Ercan and Olcay Taner Yıldız. "User Interfaces for Turkish Natural Language Processing." *Signal Processing Applications*, 2019.
- Ercan, Gökhan, Orçun Erkek, Onur Açıkğöz, **Rıza Özçelik**, Selen Parlar and Olcay Taner Yıldız. "Data Set Generation for Analysing of Turkish Semantic and Sentence Similarity." *2018 3rd International Conference on Computer Science and Engineering (UBMK)*, Pages 347-351, 2018.

Talks & Presentations

- A selected talk on DebiasedDTA at RECOMB2023 meeting (upcoming);
- Presented DebiasedDTA as a poster at ICLR - Machine Learning for Drug Discovery Workshop 2022;
- Gave two talks (15 mins each) on ChemBoost and DebiasedDTA at ISMB 2021. Also presented the works as poster;
- Presented DebiasedDTA as a poster at UKQSAR September 2021 meeting;
- Presented ChemBoost as a talk (15 mins) and poster in HIBIT 2020;
- Co-presented (30 mins) our work on Turkish Natural Language Inference as an invited talk at Kodluyoruz event (2020).

Scholarships & Honors

- Awarded the **Google EMEA Academic Scholarship** for "demonstrating a passion for technology, academic excellence, and proving [myself] as an exceptional leader and role model" (2022);
- My **mentees** received İsmail Arı Best Undergraduate Thesis Award for their contributions to DebiasedDTA;
- Received The Scientific and Technological Research Council of Turkey (TUBITAK) **graduate student scholarship** at 2019, which was awarded top-performing and promising graduate students in Turkey;
- Named as a **high honor graduate** of the Dept. of Computer Engineering, Boğaziçi University due to high performance in classes (2018);
- Received **multiple undergraduate scholarships** for 5 years from Financial Aid Office of Boğaziçi University and Youth Ministry of Turkish Republic for high performance in the coursework (2013-2018).