# Berk Atıl

*Ph.D. Student in Computer Science and Engineering*

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## Education

08/2022– **Ph.D.**, *Computer Science and Engineering*, Pennsylvania State University, State College, PA.
Evaluation and reduction of toxicity of large language models, including hate speech, abusive language and racism.
*Advisor:* Prof. Rebecca Jane Passonneau

09/2016–02/2022 **B.Sc.**, *Computer Engineering*, Bogazici University, Istanbul, Turkey.
CGPA: 3.61/4.0
**Research Experience:** Representation improvement of biomolecules via tree based neural network architectures. Also, reducing the adverse effects of biases in the datasets on deep affinity prediction models. We propose a model-oriented debiasing approach to boost the performance of the drug-target affinity models on novel biomolecules.
**Teaching Experience:** Design, grade projects about discrete event simulation and graph algorithms and help students learn course material for two semesters.

02/2020–08/2020 **Erasmus Programme**, *Technical Computer Science*, University of Twente, Enschede, The Netherlands.

## Experience

05/2024–08/2024 **AI Graduate Intern**, *Comcast AI.*
- Working on stability/determinism of large language models (LLM)
- We show that LLMs are not stable with the most deterministic hyperparameters and might result in different performances from run to run
- Working on their RAG Chatbot

08/2022–05/2023 **Teaching Assistant**, *Pennsylvania State University*, State College.
In Introduction to Artificial Intelligence and Programming courses

02/2022–06/2022 **Software Engineer**, *TAZI AI Systems*, Istanbul.
- Hands on experience with Elastic Search, Docker and some Machine Learning algortihms such as XGBoost
- Add new features to API, design development and test browser compatibility and implement website code using Scala, Akka and Play

09/2021–01/2022 **Data Science Intern**, *Roche Turkey*, Istanbul.
- Hands on experience with Machine Learning libraries such as XGBoost on a regression task that also requires probability prediction
- Contributing to the internal Python package for the Natural Language Processing (NLP) tasks

03/2020–02/2021 **Undergraduate Research Assistant**, *University of Twente*, Enschede.
- Working on predicting the probability of web pages using machine learning algorithms with network structures of the web and the content information of web pages
- We provide three statistical models for the link change rate, the presence of new links and the number of new links for the focused web crawlers. Additionally, we propose ranking methods as guidelines for the focused crawlers to increase their efficiency

02/2019–01/2020 **Backend Development Intern**, *Armut Teknoloji A.Ş.*, Istanbul.
- Hands on experience with Amazon Lambda Functions, Kinesis, Docker, Elastic Search, Microsoft SQL Server, Micorosft .Net Core and C# to design, develop, debug, ensure browser compatibility and implement API code.

## Publications

**Atil, B.**, Chittams, A., Fu, L., Ture, F., Xu, L., & Baldwin, B. (2024). LLM Stability: A detailed analysis with some surprises. arXiv preprint arXiv:2408.04667. *In submission*

**Atil, B.**, Sheikhi Karizaki, M., & J. Passonneau, R. (2024, July). VerAs: Verify Then Assess STEM Lab Reports. *In International Conference on Artificial Intelligence in Education (pp. 133-148). Cham: Springer Nature Switzerland.*

Özçelik, R., Bağ, A., **Atil, B.**, Barsbey, M., Özgür, A., & Ozkirimli, E. (2023). A Framework for Improving the Generalizability of Drug–Target Affinity Prediction Models. *In Research in Computational Molecular Biology: 27th Annual International Conference, RECOMB 2023, Istanbul, Turkey, April 16–19, 2023, Proceedings (Vol. 13976, p. 262). Springer Nature.*

Barsbey, M., Özçelik, R., Bağ, A., **Atil, B.**, Özgür, A., & Ozkirimli, E. (2023). A Computational Software for Training Robust Drug–Target Affinity Prediction Models: pydebiaseddta. *Journal of Computational Biology, 30(11), 1240-1245.*

Dang, T. K. N., Bucur, D., **Atil, B**., Pitel, G., Ruis, F., Kadkhodaei, H., & Litvak, N. (2023). Look back, look around: A systematic analysis of effective predictors for new outlinks in focused Web crawling. *Knowledge-Based Systems, 260, 110126. https://doi.org/10.1016/j.knosys.2022.110126.*

## Review Services

BEA2023 18th Workshop on Innovative Use of NLP for Building Educational Applications

ACL2023 The 61st Annual Meeting of the Association for Computational Linguistics

## Abstract Presentations

04/2021 **Machine Learning for Drug Discovery (MLDD) Workshop**, *International Conference on Learning Representations (ICLR)*, (Virtual).
DebiasedDTA: Model Debiasing to Boost Drug - Target Affinity Prediction

10/2021 **Conference on Complex Systems (CCS)**, *Complex System Society*, Lyon, France.
Prediction of New Outlinks on the World Wide Web

09/2021 **The International Symposium on Health Informatics and Bioinformatics (HIBIT)**, *Bilkent University*, Ankara, Turkey (Virtual).
DebiasedDTA: Model Debiasing to Boost Drug - Target Affinity Prediction

07/2021 **Intelligent Systems for Molecular Biology and European Conference on Computational Biology (ISMB/ECCB)**, *International Society For Computational Biology (ISBC)*, (Virtual).
Ensemble learning for novel drug - target affinity prediction

06/2021 **Statistical Inference for Network Models (SINM) Symposium**, *Indiana University Network Science Institute*, Bloomington, The USA (Virtual).
Prediction of new outlinks in the World Wide Web

## Skills

Languages Python, Java, C++, C, C#, SQL

Other Docker, Git, Latex, .Net Core, PyTorch

## Achievements and Scholarships

05/2023 **NSF Research Traineeship LinDiv**.

06/2021 **ISMB/ECCB Attendance Fellowship Award by ISCB**.

02/2021 **Intern Researcher Fellowship Program by The Scientific and Technological Research Council of Turkey (TUBITAK)**.

06/2016 **National University Entrance Exam**.
Ranked 594th among 2,300,000 participants