

Ayse Berceste Dincer

bercededincer@gmail.com | <https://bercededincer.github.io/>

EDUCATION

University of Washington

Ph.D. in Computer Science

Seattle, WA

Expected 2022

University of Washington

M.S. in Computer Science

Seattle, WA

2019

- GPA: 3.87/4.00
- Anne Dinning-Michael Wolf Endowed First-Year Fellowship
- Highlighted Coursework: Machine Learning, Statistical Methods in CS, Computational Biology, Data Visualization

Bilkent University

B.S. in Computer Engineering

Ankara, Turkey

2017

- GPA: 4.00/4.00 (Class and Faculty Rank: 1st)
- Comprehensive Fellowship (4 years)

RESEARCH EXPERIENCE

Research Assistant

AIMS Lab, University of Washington

2017 – Present

Seattle, WA

- Advised by Prof. Su-In Lee
- Developed and applied machine learning techniques to solve biological problems with a focus on cancer and Alzheimer's disease

Undergraduate Researcher

Bioinformatics and Computational Genomics Group, Bilkent University

Autumn 2016

Ankara, Turkey

- Advised by Prof. Can Alkan
- Developed algorithms for structural variant detection in human DNA

UNDERGRADUATE INTERNSHIP EXPERIENCE

Summer Intern

SRDC (Software Research & Development Consultancy)

Summer 2016

Ankara, Turkey

- Collected data from medical devices and developed a mobile application for medical data monitoring

Summer Intern

TUBITAK Software Technologies Research Institute

Summer 2015

Ankara, Turkey

- Developed mobile applications for tracking and tracing medical devices and cosmetic products

Summer Intern

TUBITAK Software Technologies Research Institute

Summer 2014

Ankara, Turkey

- Studied web design using WordPress
- Explored software management activities focused on Agile Project Management and Test-Driven Development

Summer Intern

Akgun (Medical) Software Inc.

Summer 2014

Ankara, Turkey

- Studied automated testing

PROJECTS

Deep learning of interpretable modules for Alzheimer's disease

2020 – Present

- Collaborated with Prof. Sara Mostafavi from the University of Washington
- Developed a framework for learning interpretable and deconfounded expression embeddings for the aging human brain
- Investigated the associations between transcriptomic heterogeneity and Alzheimer's disease neuropathology

An integrative method for learning interpretable communities of biological pathways

2020 – Present

- Collaborated with Nicasia Beebe-Wang from the University of Washington
- Developed an integrative web tool using community detection algorithms to reconcile biological pathways from different databases by revealing informative groups with distinct biological functions

Adversarial Deconfounding Autoencoder for learning robust gene expression embeddings 2019 – 2020

- Developed a novel unsupervised deep learning approach for learning deconfounded embeddings
- Published in Proceedings of ECCB 2020 | Contributed Talk at ISMB MLCSB 2020

DeepProfile: Interpretable deep learning of latent variables for 18 human cancers 2018 – Present

- Collaborated with Prof. Kamila Naxerova from Massachusetts General Hospital, Center for Systems Biology
- Developed an interpretable deep learning framework for learning gene expression embeddings
- Investigated the molecular mechanisms behind patient-level heterogeneity for 18 cancer types
- Highlighted as a spotlight talk at MLCB 2019 | Poster at ICML CompBio Workshop 2018

Explorator: Undergraduate Senior Design Project 2016 – 2017

- Developed a platform to generate personalized travel plans by collecting data from social media platforms
- Received Sibel Ozelci Best Senior Design Project Award

PUBLICATIONS AND PREPRINTS

- **Dincer, A. B.**, Janizek, J. D., & Lee, S. I. (2020). Adversarial Deconfounding Autoencoder for learning robust gene expression embeddings. *Bioinformatics*, 36(Supplement 2), i573–i582.
- Weinberger, E., **Dincer, A. B.** & Lee, S. I. (2020). HD-MD: Batch-effect-free embeddings of scRNA-seq data. *Machine Learning in Computational Biology (MLCB) Conference*.
- **Dincer, A. B.**, Janizek J. D., Celik, S., Hiranuma, N., Naxerova, K. & Lee, S. I. (2019). DeepProfile: Interpretable deep learning of latent variables from a compendium of expression profiles for 18 human cancers. *Machine Learning in Computational Biology (MLCB) Conference*.
- **Dincer, A. B.**, Janizek J. D., Celik, S., Hiranuma, N., Naxerova, K. & Lee, S. I. (2019). DeepProfile: Interpretable deep learning of latent variables from a compendium of expression profiles for 18 human cancers. *International Conference on Machine Learning (ICML) Workshop on Computational Biology*.
- Janizek J. D., **Dincer, A. B.**, Lundberg, S., Naxerova, K. & Lee, S. I. (2019). EXPRESS: Explainable prediction of anti-cancer drug synergy. *International Conference on Machine Learning (ICML) Workshop on Computational Biology*.
- **Dincer, A. B.**, Celik, S., Hiranuma, N., & Lee, S. I. (2018). DeepProfile: Deep learning of cancer molecular profiles for precision medicine. *Joint International Conference on Machine Learning (ICML) and International Joint Conferences on Artificial Intelligence (IJCAI) Workshop on Computational Biology*.

TEACHING EXPERIENCE

Teaching Assistant Autumn 2020

University of Washington
Seattle, WA

- Computational Biology (CSE 527)

Teaching Assistant Autumn 2019

University of Washington
Seattle, WA

- Computational Biology (CSE 527)

Undergraduate Tutor and Grader Autumn 2016

Bilkent University
Ankara, Turkey

- Introduction to Programming for Engineers (CS114)

CONTRIBUTED TALKS

- University of Washington Computational Molecular Biology (CMB) Program Virtual Retreat 2020, “Deep profiling of a compendium of expression data from 18 human cancers.”
- European Conference on Computational Biology (ECCB) 2020, “Adversarial Deconfounding Autoencoder for learning robust gene expression embeddings.”
- International Conference on Intelligent Systems for Molecular Biology (ISMB) Machine Learning in Computational and Systems Biology (MLCSB) 2020, “Adversarial Deconfounding Autoencoder for learning robust gene expression embeddings.”

TECHNICAL SKILLS

Languages: Python, Java, R, MATLAB, C/C++, HTML/CSS, SQL

Developer Tools: Jupyter Notebooks, Git, Android Studio, PyCharm, IntelliJ, Eclipse, Visual Paradigm

Packages: NumPy, Pandas, Scikit-learn, SciPy, Keras/TensorFlow, Statsmodels, Matplotlib