Ayse Berceste Dincer

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Education

University of Washington — Seattle, WA
Ph.D. in Computer Science — *Expected 2022*
- Concentration in Computational Biology
- GPA: 3.89/4.00

University of Washington — Seattle, WA
M.S. in Computer Science — *2019*
- GPA: 3.87/4.00
- Accepted with Anne Dinning-Michael Wolf Endowed First-Year Fellowship
- Highlighted Coursework: Machine Learning, Statistical Methods in CS, Computational Biology, Data Visualization

Bilkent University — Ankara, Turkey
B.S. in Computer Engineering — *2017*
- GPA: 4.00/4.00 (Class and Faculty Rank: 1st)
- Accepted with Comprehensive Fellowship

Research Experience

Research Assistant — 2021 – Present
Noble Lab, University of Washington — *Seattle, WA*
- Advised by Prof. William Stafford Noble
- Developed machine learning techniques for eliminating bias in protein quantification

Research Assistant — 2017 – 2021
AIMS Lab, University of Washington — *Seattle, WA*
- Advised by Prof. Su-In Lee
- Developed unsupervised machine learning models to solve biological problems with a focus on cancer and Alzheimer's disease

Undergraduate Researcher — Autumn 2016
Bioinformatics and Computational Genomics Group, Bilkent University — *Ankara, Turkey*
- Advised by Prof. Can Alkan
- Developed algorithms for structural variant detection in human DNA

Projects

Inferring peptide coefficients from quantitative mass spectrometry data — 2021 – Present
- Developed a deep learning approach for eliminating peptide bias from quantitative mass spectrometry data
- Contributed talks at MLCB 2021 & ASMS 2021
- Contributed talk at ISMB/ECCB CompMS 2021 (received best presentation award)

An integrative method for learning interpretable communities of biological pathways — 2020 – 2021
- 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 an 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 – 2021
- 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 Conference Presentations

- **Dincer, A. B.**, Lu, Y. Y., & Noble, W. S. (2021). Inferring peptide coefficients from quantitative mass spectrometry data. *American Society for Mass Spectrometry (ASMS).*
- **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).*
- **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).*
- 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 2021
University of Washington — *Seattle, WA*
- Machine Learning (CSE 446/546)

Teaching Assistant — Spring 2021
University of Washington — *Seattle, WA*
- Machine Learning for Big Data (CSE 547)

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)

Undergraduate Internship Experience

Summer Intern — Summer 2016
SRDC (Software Research & Development Consultancy) — *Ankara, Turkey*
- Collected data from medical devices and developed a mobile application for medical data monitoring

Summer Intern — Summer 2015
TUBITAK Software Technologies Research Institute — *Ankara, Turkey*
- Developed mobile applications for tracking and tracing medical devices and cosmetic products

Summer Intern — Summer 2014
TUBITAK Software Technologies Research Institute — *Ankara, Turkey*
- Studied web design using WordPress
- Explored software management activities focused on Agile Project Management and Test-Driven Development

Summer Intern — Summer 2014
Akgun (Medical) Software Inc. — *Ankara, Turkey*
- Studied automated testing

Contributed Talks

- Machine Learning for Computational Biology (MLCB) 2021, "Inferring peptide coefficients from quantitative mass spectrometry data with deep learning."
- American Society for Mass Spectrometry (ASMS) 2021, "Inferring peptide coefficients from quantitative mass spectrometry data."
- International Conference on Intelligent Systems for Molecular Biology / European Conference on Computational Biology (ISMB/ECCB) Computational Mass Spectrometry (CompMS) 2021, "Inferring peptide coefficients from quantitative mass spectrometry data."
- 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 (fluent), Java, R, MATLAB, C/C++, HTML/CSS, SQL
Developer Tools: Jupyter Notebooks, Git, Android Studio, PyCharm, IntelliJ, Eclipse, Visual Paradigm
Packages: NumPy, Pandas, Keras/TensorFlow, Matplotlib, Scikit-learn, SciPy, PyTorch, Statsmodels, Spark