

Ayse Berceste Dincer

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

EDUCATION

University of Washington

Ph.D. in Computer Science

Seattle, WA

Expected 2022

- GPA: 3.89/4.00

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

Noble Lab, University of Washington

2021 – Present

Seattle, WA

- Advised by Prof. William Stafford Noble
- Developed and applied machine learning techniques with a focus on proteomics and quantitative mass spectrometry

Research Assistant

AIMS Lab, University of Washington

2017 – 2021

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

PROJECTS

Deep learning approach for improving the accuracy of protein quantification

2021 – Present

- Developed a machine learning approach for eliminating peptide bias from quantitative mass spectrometry data
- 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 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 – 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

- **Dincer, A. B.**, Lu, Y. Y., & Noble, W. S. (2021). Inferring peptide coefficients from quantitative mass spectrometry data. *Intelligent Systems for Molecular Biology (ISMB) / European Conference on Computational Biology (ECCB)*.
- **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)*.
- **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 <i>University of Washington</i> <ul style="list-style-type: none">• Machine Learning for Big Data (CSE 547) | Spring 2021 <i>Seattle, WA</i> |
| Teaching Assistant <i>University of Washington</i> <ul style="list-style-type: none">• Computational Biology (CSE 527) | Autumn 2020 <i>Seattle, WA</i> |
| Teaching Assistant <i>University of Washington</i> <ul style="list-style-type: none">• Computational Biology (CSE 527) | Autumn 2019 <i>Seattle, WA</i> |
| Undergraduate Tutor and Grader <i>Bilkent University</i> <ul style="list-style-type: none">• Introduction to Programming for Engineers (CS114) | Autumn 2016 <i>Ankara, Turkey</i> |

UNDERGRADUATE INTERNSHIP EXPERIENCE

| | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|
| Summer Intern <i>SRDC (Software Research & Development Consultancy)</i> <ul style="list-style-type: none">• Collected data from medical devices and developed a mobile application for medical data monitoring | Summer 2016 <i>Ankara, Turkey</i> |
| Summer Intern <i>TUBITAK Software Technologies Research Institute</i> <ul style="list-style-type: none">• Developed mobile applications for tracking and tracing medical devices and cosmetic products | Summer 2015 <i>Ankara, Turkey</i> |
| Summer Intern <i>TUBITAK Software Technologies Research Institute</i> <ul style="list-style-type: none">• Studied web design using WordPress• Explored software management activities focused on Agile Project Management and Test-Driven Development | Summer 2014 <i>Ankara, Turkey</i> |
| Summer Intern <i>Akgun (Medical) Software Inc.</i> <ul style="list-style-type: none">• Studied automated testing | Summer 2014 <i>Ankara, Turkey</i> |

CONTRIBUTED TALKS

- 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, 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, Spark