

Zeynep Kiliñç

UNDERGRADUATE RESEARCHER

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Education

Sabancı University

BS Computer Science and Engineering

- cGPA: 3.77

Istanbul, Turkey

2018 - 2022

Sabancı University

BS Molecular Biology, Genetics and Bioengineering

- Minor: Chemistry

Istanbul, Turkey

2019 - 2023

Publications

- Altay HY, Ozdemir F, Afghah F, **Kilinc Z**, Ahmadian M, Tschopp M and Agca C (2022). "Gene regulatory and gene editing tools and their applications for retinal diseases and neuroprotection: From proof-of-concept to clinical trial." *Frontiers in Neuroscience*. 16:924917.doi.org/10.3389/fnins.2022.924917
- Azgari C, **Kilinc Z**, Turhan B, Cerci D, Adebali O. (2021). "The Mutation Profile of SARS-CoV-2 Is Primarily Shaped by the Host Antiviral Defense." *Viruses*.13(3):394. doi.org/10.3390/v13030394
- Adebali, O, Bircan, A, Çirci, D, Islek, B, **Kilinc Z**, Selcuk, B, Turhan, B (2020). "Phylogenetic analysis of SARS CoV-2 genomes in Turkey." *Turkish Journal of Biology*,44(3):146-156.doi.org/10.3906/biy-2005-35

Research Experience

Identifying Organocatalysts Using Graph-Theory Based Reaction Modeling

Remote - Washington, USA

Research Associate at Cleaves Lab ✦ Blue Marble Space Institution

May 2022 - Present

- Generated chemical reaction networks with Python & Neo4j, conducted network analysis through Gephi software.
- Produced data-sets on compound properties by using chem-informatics tools and created figures with Python.
- Worked on identifying possible organocatalytic compounds and autocatalytic cycles.

Detection and Analysis of Transcytosis Proteins for Drug Delivery to the Brain

Istanbul, Turkey

Researcher at Mustafaoglu Lab ✦ Scientific and Technological Research Council of Turkey

September 2021 - Present

- Built the pipeline for data extraction from multiple online databases.
- Extended the pipeline with the text scrapping and data reshaping modules.
- Applied statistical tests and analysis on the output for transcytosis protein identification.

Analysis of Clinical Trials on Gene regulatory and Gene Editing Tools

Istanbul, Turkey

Researcher at Agca Lab ✦ Sabancı University & Bern University

December 2021 - April 2022

- Retrieved the quantitative data for the project from different databases by applying multiple web data extraction methods.
- Standardized the retrieved data through categorical association of the Medical Subject Headings (MeSH) thesaurus.
- Produced the statistical analysis figures for the paper.

Implementation of a Text-Mining Tool to Extract Bacteria-Disease Relations

Istanbul, Turkey

Research Intern at Sezerman Lab ✦ Acıbadem University

May 2021 - February 2022

- Built the web-scrapping scripts with Python bs4.
- Created the main corpus, disease and bacteria data sets.
- Worked on tokenization, and relation detection advancements.

Analysis of SARS-COV-2 & Influenza Virus and the Pandemic Expansion

Istanbul, Turkey

Researcher at Adebali Lab ✦ Scientific and Technological Research Council of Turkey

April 2020 - May 2022

- Made phylogenetic and statistical analysis on genomic sequence data sets of SARS-CoV-2, collected from >5M patients.
- Made phylogenetic and mutational analysis for influenza virus genomes collected by Hacettepe University from patients.
- Built mutational analysis pipelines for both virus types, using Python, R and Snakemake.
- Produced the result figures of two published papers and method & result figures of two letters (to be submitted).

Integrating Bee Disease Screening with Exposomics Analysis in R

Istanbul, Turkey

Research Intern at Mayack Lab ✦ Sabancı University

September 2019 - April 2020

- Tracked chemical properties of the bee hives through exploratory data analysis.
- Examined the hive-health through time with the application of time series analysis.

Preferential Repair of DNA Damage on Exons

Research Intern at Adebali Lab ✦ Sabancı University

Istanbul, Turkey

February 2019 - August 2021

- Analyzed genome-wide repair and damage data-sets, generated with recent NGS-based techniques.
- Enhanced the analysis by adding epigenetic marker associations.
- Analysed the quantitative differences between intronic and exonic repair mechanisms.
- Generated the results and methods figures of the project.

Honors & Awards

2022	ARDEB-1001 Scholarship , Scientific and Technological Research Council of Turkey	\$2000
2021	2209-A Research Support Program , Scientific and Technological Research Council of Turkey	\$500
2021	Publication Award in Q1 Journals for Undergraduates , Sabancı University	\$200
2021	Honorable Poster Award , 14th International Symposium on Health Informatics & Bioinformatics	
2020	2247-C STAR Research Funding , Scientific and Technological Research Council of Turkey	\$800
2019	Selected Project , 12th International Symposium on Health Informatics and Bioinformatics	
2018	Extracurricular Student Activities Award , Sabancı University	
2018	Certificate of Achievement , Sabancı University School of Languages	
2017	National University Exam Achievement Scholarship , Sabancı University	\$35000
2017	National University Exam Valedictorian , Bilfen Camlica High School	
2017	Fermat Math Contest International Category Honor List , University of Waterloo	

Presentations

Conference Presentation ✦ Blue Marble Space Institution Conference(BlueSciCon)	August 2022
• Identifying Organocatalysts using Graph-Theory Based Reaction Modelling	
Poster Presentation ✦ International Symposium on Health Informatics & Bioinformatics	September 2021
• The Mutation Profile of SARS- CoV-2 Is Primarily Shaped by the Host Antiviral Defense	
Lab Presentation ✦ Adebali Lab Meeting with Nobel Laureate Prof. Aziz Sancar	September 2021
• The Mutational and Phylogenetic Analysis of SARS-CoV-2 and Influenza Viral Genomes	
Invited Talk ✦ Labredoor R&D Labs - Inspire Talks	November 2020
• The Mutational and Phylogenetic Analysis of SARS-CoV-2 and Influenza Viral Genomes	
Poster Presentation ✦ International Symposium on Health Informatics & Bioinformatics	October 2019
• Preferential Nucleotide Excision Repair in Exons	

Teaching Experience

Bioinformatics Course Assistant ✦ Sabancı University	2021-2022
• Held office hours and supervised students in their weekly lab assignments.	
• Reviewed and contributed to the content of the lab assignments.	
Computational Biology Course Assistant ✦ Sabancı University	2020-2022
• Supervised students in their weekly lab assignments in linux/unix, python and R.	
• Reviewed and contributed to the content of the lab assignments.	
Computational Approaches to Problem Solving Assistant ✦ Sabancı University	2020-2021
• Held office hours and tutored students during recitations for Python coding challenges	

Skills

Language	Turkish (Native), English (Advance), German (Pre-intermediate)
Programming	Python, R, UNIX, C++,HTML, CSS, Java, MySQL, JavaScript, \LaTeX
Tools	GIT, Gephi, NCBI Tools, SIB Tools, MEGA, VMD, NAMD, Adobe Tools
Techniques	Data Analysis, Network Analysis, Statistics, Machine Learning, Phylogenetics, Molecular Dynamics Simulation, Data visualization, Natural Language Processing, Web scrapping, Graphic Design

Professional Experience

Student Division Leader ♦ Sabancı University, Marketing & Communications Department

2019-Present

- Organized campus tours and presentations for high-schools visiting the university.
- Conducted the data analysis and report of the visitors periodically.
- Directed the field operations and the orientation process of the trainees.

Senior Mentor ♦ Sabancı University, Center for Individual and Academic Development

2020-2022

- Supervised more than 30 students for their adaptation to the university and their academic progress.
- Organized informative sessions .

Research and Development Summer Intern ♦ Farplas & Fark Labs

2020-2021

- Applied route optimization algorithm strategies for the delivery system of the company.
- Built the website for real time truck tracking and the demonstration of the optimal route based on user input.
- Improved the optimization by implementing real time weather and humidity parameters to the algorithm.

Service and Outreach

Memberships

2022-Present	Sabancı University Discipline Committee , Student Representative
2021-Present	Sabancı University Science Club , Co-founder
2019-Present	International Society for Computational Biology Student Council RSG Turkey , Member
2018-2022	Sabancı University Robotics Club , Co-President
2018-2020	Sabancı University Motorsports Club , Aerodynamics Team Leader & Support Team Manager

Events

2022	Sabancı University IEEE ShareXperience Conference , Invited Speaker
2022	Fenerbahçe High Schools Career Conference , Invited Speaker for Molecular Biology
2022	European Atrobiology Academy , Participant
2022	Software Carpentry Genomics Workshop , Assistant
2020	13th Health Informatics and Bioinformatics Symposium , Organization Committee Member
2018	Civil Involvement Projects for Elementary Schools in Need , Volunteer
2017,2019	Lions Youth Camps and Exchange Program (Denmark, Canada) , Exchange Student
2017,2018	Duke of Edinburgh Youth Program , Bronze category volunteer