Omer Acar

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Education

2017–Present	**Joint Computational Biology Ph.D.**, *Carnegie Mellon University-University of Pittsburgh*, Pittsburgh, PA.
GPA:	3.84/4.0
2012-2017	**B.Sc., Materials Science and Engineering**, *Sabanci University, Istanbul*, Turkey.
Minor:	Physics
GPA:	3.6/4.0

Research Experience

2018–Present	**Carvunis Lab**, *University of Pittsburgh*, Pittsburgh, PA, Graduate Research Assistant.

Advisor: Dr. Anne-Ruxandra Carvunis

Projects:
- Developed simulation methods to analyze large yeast genetic interaction dataset using graph theory.
- Developed multiple sequence alignment analysis and clustering pipeline in R and Python to identify evolutionary changes in open reading frames.
- Used membrane molecular dynamics and structural prediction tools to understand the evolution of transmembrane domains in *de novo* genes.

2016	**Computational Molecular Biology Lab**, *Freie Universität Berlin*, Berlin, Germany, Undergraduate Researcher.

Advisor: Dr. Christoph Wehmeyer

Developed algorithms for automated umbrella sampling simulations on Markov Chain Monte Carlo systems as part of summer internship project.

2013–2017	**MIDSTLAB**, *Sabanci University, Istanbul*, Turkey, Undergradute Research Assistant.

Advisor: Dr. Canan Atilgan

Projects:
- Applied statistical physics and molecular dynamics to understand self-assembly of lipidoids to develop robust drug delivery systems.
- Used molecular dynamics, free energy perturbations, and steered molecular dynamics to study DHFR mutations causing antibiotic resistance in E.Coli.

Awards

Fellowships

2012–2017	Sabanci University B.Sc. Merit Scholarship covering full tuition upon success in nationwide university entrance exam

Honors

2014-2017	Placed in Dean's High Honor list (7 semesters)

Work Experience

2015   **Tusas Engine Industries (TEI)**, Eskisehir, Turkey, Intern.
Developed Microsoft Excel macros to automate analysis of mechanical properties of alloys

Technical Experience

Extremely Proficient With

languages   Python, R

technologies   BioConductor, Tidyverse, BioPython, Scikit-Learn, Igraph, Networkx, LaTeX, Bash Scripting, Git, Vim, MS Office Products

Have Experience With

languages   PHP, C++

technologies   MySQL, RShiny, NAMD, Amber, PyMol, VMD, Adobe Illustrator

Publications

Journal Articles

[1] Haleh Abdizadeh, Yusuf Talha Tamer, **Omer Acar**, Erdal Toprak, Ali Rana Atilgan, and Canan Atilgan. Increased substrate affinity in the Escherichia coli L28r dihydrofolate reductase mutant causes trimethoprim resistance. *Physical Chemistry Chemical Physics*, 19(18):11416–11428, 2017.

Posters

[1] **Omer Acar**, Aaron Wacholder, and Anne-Ruxandra Carvunis. Exploring the evolution of young gene function through genetic interaction networks. In *CSHL Network Biology Conference*, Cold Spring Harbor, NY, March 2019.

[2] **Omer Acar**, Aaron Wacholder, and Anne-Ruxandra Carvunis. Exploring de novo gene emergence through genetic interaction networks. In *Evolution in Philadelphia Conference, EPiC*, Philedelphia, PA, September 2019.

[3] **Omer Acar**, Aaron Wacholder, and Anne-Ruxandra Carvunis. Exploring de novo gene emergence through genetic interaction networks. In *CMU-University of Pittsburgh Computational Biology Program Retreat*, Pittsburgh, PA, August 2019.