

Niki Tavakoli, Ph.D.

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Education

2019 – 2026	University of Southern California, Los Angeles, CA
05/2026	<u>Ph.D. in Biomedical Engineering</u> Thesis: Exploring the metabolic interactions between colorectal cancer cells and cancer-associated fibroblasts: a systems biology approach
05/2021	<u>M.S. in Biomedical Engineering</u>
2016 – 2018	University of Southern California, Los Angeles, CA
06/2018	B.A. in Psychology

Professional Experience

Postdoctoral Research Fellow, Cedars-Sinai Medical Center	
Department of Cardiology, Smidt Heart Institute	2026 – Present
Advisor: Anja Karlstaedt	
Funding: NIH NRSA T32 Trainee	
Graduate Research Assistant, University of Southern California	
Department of Biomedical Engineering	2021 – 2026
Advisor: Stacey Finley	
Funding: USC Graduate School Fellowship, USC Annenberg Fellowship Top-Off	

Honors and Awards

UCLA CTSI K Scholars Society	2026 – 2028
NIH Ruth L. Kirschstein National Research Service Award (NRSA T32 Trainee)	2026 – 2028
Association of Professors and Scholars of Iranian Heritage, Academic Award	2026
University of Southern California Graduate School Fellowship	2021 – 2022
University of Southern California Annenberg Fellowship Top-Off	2021 – 2022
Academic Excellence & Service Award, USC Viterbi School of Engineering	2021
University of California Regents Scholarship	2016 – 2018

Publications

Under review/revision/preparation

3. **Tavakoli, N.**, Mahaganapathy, V., Cetin, H., Fung, E., Mumenthaler, S.M., and Finley, S.D., (2026) "Metabolic Modeling and Analysis of Patient-Specific Colorectal Cancer Tumor-Stroma Communities".

Published / In Press

2. Elton, E., **Tavakoli, N.**, Cetin, H., and Finley, S.D. (2026) "Cancer-associated fibroblasts drive metabolic heterogeneity in colorectal cancer cells: predictions from metabolic modeling". *npj Systems Biology and Applications*. 12, 54.

1. **Tavakoli, N.**, Fung, E.J., Coleman, A., Huang, Y., Bigger, M., Doche, M., Kim, S., Lenz, H., Graham, N.A., Macklin, P., Finley, S.D., and Mumenthaler, S.M. (2025) "Merging metabolic modeling and imaging for screening therapeutic targets in colorectal cancer". *npj Systems Biology and Applications*. 11, 12.

Contributed Meeting Presentations

Oral Presentations

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| 5. Grodins Symposium, USC Dept. of Biomedical Engineering
<i>Los Angeles, CA</i> | 2026 |
| 4. USC Women in Science & Engineering – <i>STEM Bytes Seminars</i>
<i>Los Angeles, CA</i> | 2026 |
| 3. Southern California Metabolism Conference
<i>Los Angeles, CA</i> | 2025 |
| 2. BMES Annual Meeting
<i>Seattle, WA</i> | 2023 |
| 1. Ellison Medical Institute – <i>Graduate Student Seminar Series</i>
<i>Santa Monica, CA</i> | 2023 |

Poster Presentations

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| 11. 9th Constraint-Based Reconstruction and Analysis (COBRA) Conference
<i>Potsdam, Germany</i> | 2026 |
| 10. Southern California Systems Biology Symposium
<i>University of California, Los Angeles, CA</i> | 2026 |
| 9. Ellison Medical Institute – Graduate Student Symposium
<i>Santa Monica, CA</i> | 2025 |
| 8. Southern California Systems Biology Symposium
<i>University of California, Riverside, CA</i> | 2025 |
| 7. Southern California Metabolism Symposium
<i>University of Southern California, Los Angeles, CA</i> | 2025 |
| 6. Grodins Symposium, USC Dept. of Biomedical Engineering
** First place poster winner
<i>Los Angeles, CA</i> | 2025 |
| 5. Metabolic Engineering & Systems Biology Workshop
<i>Chalmers University of Technology, Gothenburg, Sweden</i> | 2024 |
| 4. Southern California Metabolism Symposium
<i>University of California, Irvine, CA</i> | 2024 |
| 3. NIH Cancer Systems Biology Consortium Investigator Meeting
<i>University of Colorado Anschutz Medical Campus, Denver, CO</i> | 2023 |
| 2. NIH Cancer Systems Biology Consortium West Coast Meeting
<i>San Diego, CA</i> | 2022 |
| 1. Ellison Medical Institute – Graduate Student Symposium
** Poster winner and selected to deliver oral presentation at Special Seminar Series
<i>Santa Monica, CA</i> | 2022 |

Teaching Experience

Graduate Student Instructor

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| USC Viterbi Summer Undergraduate Research Experience (SURE) Program | 2024 |
| <ul style="list-style-type: none">• Mentored visiting undergraduate student to complete a 3-month summer research project. Taught student basics of coding and successfully running and manipulating a computational model of cancer cell metabolism. Provided instruction for basics of scientific writing and data visualization. | |
| USC Viterbi K-12 STEM Center | 2020-2021 |
| <ul style="list-style-type: none">• Taught various after-school programs and 2020 summer engineering camp to elementary and high-school level students in foundational concepts of STEM. | |

Teaching Assistant

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| USC Viterbi Department of Biomedical Engineering | 2020-2021 |
| <ul style="list-style-type: none">• BME 513 (Graduate Level - Biomedical Signals & Systems Analysis)• BME 415 (Undergraduate Level - Regulation of Biomedical Products)• Weekly office hours, graded problem sets & exams, held study sessions | |

Technical Skills

- Programming: Python, MATLAB, Perl
- High-Performance Computing: cluster-based simulation and parallel job scheduling (SLURM)
- Genome-scale Metabolic Modeling: constraint-based modeling (COBRA, RAVEN, Gurobi)
- Machine Learning: decomposition/visualization (PCA, t-SNE, UMAP)
- Bulk RNA-sequencing Analysis: enrichment analysis (GSEA)
- Version Control & Containerization: Git, Docker
- Web Development: HTML/CSS

Professional Membership

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| National Postdoctoral Association | 2026 – Present |
| Society of Mathematical Biology | 2021 – Present |
| Biomedical Engineering Society | 2021 – Present |