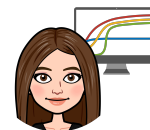# Niki Tavakoli

Ph.D. Student in Biomedical Engineering

1002 Childs Way, MCB 307, Los Angeles, CA 90089

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RESEARCH INTERESTS	Systems biology, computational oncology, mathematical modeling, metabolic engineering, machine learning

EDUCATION

University of Southern California — Exp. May 2026
Ph.D. Biomedical Engineering

University of Southern California — May 2021
M.S. Biomedical Engineering

University of California, Los Angeles — June 2018
B.A. Psychology, emph. neuroscience

RESEARCH EXPERIENCE

Graduate Research Assistant — May 2021 - Present
University of Southern California, Viterbi School of Engineering
Los Angeles, CA
Advisor: Stacey Finley, Ph.D.
Research: Utilization and development of computational modeling to understand the reciprocal metabolic effects between colorectal cancer cells and cancer-associated fibroblasts.
Funding: National Institute of Health, USC Graduate School

Summer Researcher — June - Aug 2019
Keck Medicine of USC, Dept. of Molecular Microbiology & Immunology
Los Angeles, CA
Performed literature review and collected data for database creation.

TEACHING EXPERIENCE

Teaching Assistant & Course Producer — Aug 2020 - May 2021
University of Southern California, Dept. of Biomedical Engineering
Los Angeles, CA
Courses:
- **BME 513**, Signals & Systems Analysis
- **BME 415**, Regulation of Medical Products

Assisted students during office hours in addition to grading problem sets and exams.

Student Instructor — Jan 2020 - May 2021
USC Viterbi K-12 STEM Center
Los Angeles, CA
Instructing high school students in after-school programs within various subjects including Mathematics, Science and Engineering. Teaching assistant for summer engineering camp.

WORK EXPERIENCE

Data Science Intern — Nov 2019 - May 2020
Leaf Group Ltd.
Santa Monica, CA
Developed SEO prediction models and COVID-19 visualization dashboards in Python for company brands.

Biofeedback Technician   June 2017 - July 2018
Peak Brain Institute
Culver City, CA
Administered client electroencephalograms and helped clean generated brain map data. Ran and monitored client biofeedback sessions using EEGer.

Clinical Intern   June 2016 - Nov 2017
UCLA Ronald Reagan Medical Center
Los Angeles, CA
Assisted doctors and nurses with patient rounds and care in the ER, ICU and Oncology units.

HONORS & AWARDS

Awards:
- USC Biomedical Engineering Annual Symposium   04/2022
  Poster award for 3rd place in signals & systems section
- Ellison Institute of USC Graduate Symposium   05/2022
  Poster award and talk invitation
- University of Southern California Viterbi School of Engineering 05/2021
  Annual M.S. award for academic excellence & service
- University of California, Los Angeles Ronald Reagan Medical Center 11/2017
  Care Extender Internship Award

Scholarships & Fellowships:
- PhysiCell Summer Course Honorarium   06/2021
- University of Southern California Annenberg Fellowship Top-Off 02/2021
- University of Southern California Graduate Fellowship   02/2021
- University of California Regents Scholarship   08/2016

INVITED TALKS

- Ellison Institute of Technology: Graduate Research Seminar Series 05/2023
  Santa Monica, California

CONFERENCES

Talks:
- Biomedical Engineering Society (BMES) Annual Conference   10/2023

Poster Presentations:
- Ellison Institute of Technology: Graduate Student Symposium 02/2024
  Santa Monica, California
- USC Grodins Annual Biomedical Engineering Conference   04/2023
  Los Angeles, California
- Southern California Systems Biology Conference   04/2023
  Los Angeles, California
- Cancer Systems Biology Consortium (CSBC) Investigator Meeting 03/2023
  Denver, Colorado
- Southern California Metabolism Conference   03/2023
  San Diego, California
- CSBC West Coast Symposium   03/2022
  San Diego, California
- Ellison Institute of Technology: Graduate Student Symposium 05/2022
  Santa Monica, California
- USC Grodins Annual Biomedical Engineering Conference   05/2022
  Los Angeles, California

SKILLS & LANGUAGES	**Languages**: Python3, MATLAB, C, HTML/CSS
	Technologies: Pandas, NumPy, Matplotlib, Seaborn, Sci-Kit Learn SciPy, Git, Tensorflow, Keras, MySQL, mongoDB, openCOBRA

RELEVANT COURSEWORK

Graduate: Molecular Biology of Cancer, Signals and Systems Analysis, Biomedical Imaging Informatics, Advanced Biomedical Systems, Scientific Computing and Visualization, Data Science at Scale, Database Systems

Undergraduate: General & Organic Chemistry, Cell & Molecular Biology, Genetics/Evolution/Ecology, Biochemistry, Multi-Variable Calculus, Calculus-Based Physics, Linear Algebra & Differential Equations, Statistics, Research Methods

GRADUATE LEVEL PROJECTS

PhysiCell Microenvironment Cell Simulator   May 2021
Worked in a 6 person team of engineers to develop an agent-based model extension of the PhysiCell software by using C++ to implement cell fibers in the extracellular matrix.
Github

Distributed Memory K-Clique Enumeration   Dec 2020
Helped create a parallel algorithm for k-clique enumeration that can scale clique enumeration/counting on large-scale clusters using both shared and distributed memory parallelism in high performance computing.
Github

Prediction Model for Search Engine Optimization   Dec 2019
Utilized the Google BigQuery API in Python to reduce over 10 million rows of data from MongoDB those those with the highest calculated potential to improve SEO of company's websites on Google. Trained data using a prediction model that ultimately resulted in quick and efficient content improvements.

PROFESSIONAL MEMBERSHIP

Society of Mathematical Biology (SMB)
Biomedical Engineering Society (BMES)