

# Niki Tavakoli

Ph.D. Student in Biomedical Engineering

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RESEARCH INTERESTS	Mathematical oncology, systems biology, computational science, agent-based modeling, metabolic engineering, machine learning	
EDUCATION	<b>Ph.D. - University of Southern California</b> <b>M.S. - University of Southern California</b> <b>B.A. - University of California, Los Angeles</b>	05/2021 - 08/2019 - 05/2021 08/2016 - 06/2018
RESEARCH EXPERIENCE	<b>Graduate Research Assistant</b> University of Southern California, Viterbi School of Engineering <i>Los Angeles, CA</i> Advisor: Stacey D. Finley Project: Constraint-based modeling of cancer & stromal cells Funding: NIH U01 Grant, USC Graduate School Fellowship  <b>Summer Researcher</b> Keck School of Medicine of USC <i>Los Angeles, CA</i> Dept. of Molecular Microbiology & Immunology Project: data collection & database creation	05/2021 -        06/2019 - 08/2019
TEACHING EXPERIENCE	<b>Teaching Assistant &amp; Course Producer</b> University of Southern California, Dept. of Biomedical Engineering <i>Los Angeles, CA</i> Courses: <ul style="list-style-type: none"><li>• BME 513, Signals &amp; Systems Analysis</li><li>• BME 415, Regulation of Medical Products</li></ul> Assisted students during office hours in addition to grading problem sets and exams.  <b>Student Instructor</b> USC Viterbi K-12 STEM Center <i>Los Angeles, CA</i> Instructing high school students in after-school programs within various subjects including Mathematics, Science and Engineering.	08/2020 - 05/2021        01/2020 - 05/2021
WORK EXPERIENCE	<b>Data Science Intern</b> Leaf Group Ltd. <i>Santa Monica, CA</i> Developed SEO prediction models and COVID-19 visualization dashboards in Python for company brands.  <b>Biofeedback Technician</b> Peak Brain Institute <i>Culver City, CA</i> Administered client electroencephalograms and helped clean data. Set up and ran client biofeedback sessions.	11/2019 - 05/2020        06/2017 - 07/2018

	<b>Clinical Intern</b> UCLA Ronald Reagan Medical Center <i>Los Angeles, CA</i> Assisted doctors and nurses with patient rounds and care in the ER, ICU and Oncology units.	06/2016 - 11/2017
<b>HONORS &amp; AWARDS</b>	<b>Scholarships &amp; Fellowships:</b> <ul style="list-style-type: none"> <li>• <i>PhysiCell Honorarium</i> (06/2021)</li> <li>• <i>USC Annenberg Fellowship Top-Off</i> (02/2021)</li> <li>• <i>USC Graduate Fellowship</i> (02/2021)</li> <li>• <i>UCLA Regents Scholarship</i> (08/2016)</li> <li>• <i>Freshman Academic Excellence Scholarship</i> (10/15)</li> </ul> <b>Awards:</b> <ul style="list-style-type: none"> <li>• <i>USC Viterbi M.S. Award for Academic Excellence &amp; Service</i> (05/2021)</li> <li>• <i>UCLA Care Extender Intern Award</i> (11/2017)</li> </ul>	
<b>SKILLS &amp; LANGUAGES</b>	<b>Languages:</b> Python (packages: Pandas, NumPy, Matplotlib, Seaborn, Sci-Kit Learn), MATLAB, C, HTML5/CSS3 <b>Other:</b> Git, LaTeX, openMP, CUDA, Slurm batch scheduler <b>Experience with:</b> Metabolic flux analysis (openCOBRA), Machine Learning algorithms, parallel programming	
<b>RELEVANT &amp; COURSEWORK</b>	<b>Graduate:</b> Systems Biology, Signals and Systems Analysis, Biomedical Imaging Informatics, Advanced Biomedical Systems, Scientific Computing and Visualization, Data Science at Scale, Database Systems <b>Undergraduate:</b> General & Organic Chemistry, Cell & Molecular Biology, Genetics/Evolution/Ecology, Biochemistry, Multi-Variable Calculus, Calculus-Based Physics, Linear Algebra & Differential Equations, Statistics, Research Methods	
<b>PROJECTS</b>	<b>PhysiCell Microenvironment Cell Simulator</b> 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. <a href="#">Github</a>	06/2021
	<b>Distributed Memory K-Clique Enumeration</b> 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. <a href="#">Github</a>	12/2020
	<b>Prediction Model for Search Engine Optimization</b> 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.	12/2019
<b>COMMUNITY ENGAGEMENT</b>	<ul style="list-style-type: none"> <li>• <b>USE Women in Science &amp; Engineering</b> Member and graduate student mentor.</li> </ul>	01/20 -

- **USC Viterbi K-12 STEM Center** 08/19 -  
Student instructor for LAUSD after-school programs and student assistant.
- **USC Viterbi Graduate Student Association** 01/20 - 03/20  
Biomedical Engineering Senator; collaborating to organize events for grad students.

#### **PROFESSIONAL SOCIETIES**

- **Society of Mathematical Biology (SMB)**  
Elected member of Publications Committee.
- **Biomedical Engineering Society (BMES)**