Niki Tavakoli

Ph.D. Student in Biomedical Engineering

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RESEARCH INTERESTS	Metabolic engineering, constraint-based modeling, computational science, mathemat- ical oncology, machine learning		
EDUCATION	 Ph.D University of Southern California M.S University of Southern California B.A University of California, Los Angeles 	05/2021 - Present 08/2019 - 05/2021 08/2014 - 06/2018	
RESEARCH EXPERIENCE	Graduate Research Assistant University of Southern California, Viterbi School of Engineering Los Angeles, CA Advisor: Stacey D. Finley Project: A systems-level framework an analysis for gene knock cancer Funding: NIH U01 Grant, USC Graduate School Fellowship	ant 05/2021 - Present rnia, Viterbi School of Engineering 05/2021 - Present nework an analysis for gene knockdowns in colorectal SC Graduate School Fellowship	
	Summer Researcher Keck School of Medicine of USC Los Angeles, CA Dept. of Molecular Microbiology & Immunology Performed literature review and collected data for database creat	06/2019 - 08/2019 tion.	
TEACHING EXPERIENCE	Teaching Assistant & Course Producer08/2020 - 05/2021University of Southern California, Dept. of Biomedical EngineeringLos Angeles, CACourses:• BME 513, Signals & Systems Analysis• BME 415, Regulation of Medical ProductsAssisted students during office hours in addition to grading problem sets and exams		
	Student Instructor USC Viterbi K-12 STEM Center <i>Los Angeles, CA</i> Instructing high school students in after-school programs within cluding Mathematics, Science and Engineering.	01/2020 - 05/2021 various subjects in-	
WORK EXPERIENCE	Data Science Intern Leaf Group Ltd. Santa Monica, CA Developed SEO prediction models and COVID-19 visualization da for company brands.	11/2019 - 05/2020 ashboards in Python	
	Biofeedback Technician Peak Brain Institute <i>Culver City, CA</i> Administered client electroencephalograms and helped clean dat	06/2017 - 07/2018 ta. Set up and ran	

client biofeedback sessions.

	Clinical Intern 06 UCLA Ronald Reagan Medical Center 06 Los Angeles, CA 06	/2016 - 11/2017
	Assisted doctors and nurses with patient rounds and care in the EF cology units.	R, ICU and On-
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
	 University of Southern California Viterbi School of Engineering M.S. award for academic excellence & service 	g 05/2021
	• University of California, Los Angeles Ronald Reagan Medical Care Extender Internship Award	Center 11/2017
	Scholarships & Fellowships: • PhysiCell Summer Course Honorarium	06/2021
	• University of Southern California Annenberg Fellowship Top-O	off $02/2021$
	• University of Southern California Graduate Fellowship	02/2021
	• University of California Regents Scholarship	08/2016
INVITED TALKS	• Ellison Institute Graduate Research Seminar Series Santa Monica, California	05/2023
CONFERENCES	<u>Talks:</u> • Biomedical Engineering Society (BMES) Annual Conference	10/2023
	Poster Presentations:	
	• USC Grodins Annual Biomedical Engineering Conference	04/2023
	 Southern California Systems Biology Conference 	04/2023
	 Los Angeles, California Cancer Systems Biology Consortium (CSBC) Investigator Mee 	ting $03/2023$
	Southern California Metabolism Conference	03/2023
	San Diego, California • CSBC West Coast Symposium	03/2022
	San Diego, California	00/2022
	• Ellison Institute of USC Graduate Students Symposium	05/2022
	 USC Grodins Annual Biomedical Engineering Conference Los Angeles, California 	05/2022
SKILLS & LANGUAGES	 Languages: Python3 (packages: Pandas, NumPy, Matplotlib, S Learn), MATLAB, C, bash Web Dev: HTML5, CSS3, Ruby on Rails Other: Git, LaTeX, openMP, CUDA, Slurm batch scheduler, Keras 	eaborn, Sci-Kit

Experience with: Metabolic flux analysis (openCOBRA), Machine Learning algorithms, parallel programming

- RELEVANT Graduate: Systems Biology, Molecular Biology of Cancer, Signals and Systems COURSEWORK 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
- PROJECTS
 PhysiCell Microenvironment Cell Simulator
 06/2021

 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 12/2020 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 12/2019 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 • Convergent STEM (cSTEM) 08/2022 - Present DEVELOPMENT Working with other STEM PhD students to organize events for students at the Michelson Center for Convergent Biosciences at USC. • Women in Engineering (WiE) 05/2023 - Present Member of media team & undergraduate mentor. • USC Viterbi Graduate Student Association 01/2020 - 03/2020 Biomedical Engineering Senator. Organized events and contributed to graduate student life at USC. • USC Viterbi K-12 STEM Center 08/2019 - 01/2020 Student instructor for LAUSD after-school programs and student assistant. PROFESSIONAL • Society of Mathematical Biology (SMB) SOCIETIES Member of Publications Committee.
 - Biomedical Engineering Society (BMES) Member & Volunteer for BMES 2021 Organization.