

SPENCER GUO

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EDUCATION	The University of Chicago , Chicago, IL Ph.D. candidate in Chemistry (expected graduation 2025) ADVISORS: Prof. Aaron Dinner and Prof. Benoît Roux RESEARCH INTERESTS: Theoretical and computational analysis of protein mechanisms, dynamics of voltage-gating and protein dissociation	9/2020 – present
	Stanford University , Stanford, CA B.S. in Biological Chemistry, minor in Computer Science COURSEWORK: Organic Chemistry, Physical Chemistry, Biochemistry, ODEs, PDEs, Computer Systems, Artificial Intelligence, Probability, Quantum Mechanics, Classical Mechanics, Statistical Mechanics	9/2016 – 6/2020 GPA: 3.949
	Markland Lab Stanford University Simulated of IR spectra of bulk water using DFTB (density functional tight binding) Benchmarked DFTB calculations against results from DFT Investigated a neural network method to calculate molecular dipoles	Undergraduate Research Assistant 9/2018 – 6/2020
EXPERIENCE	Schrödinger New York, NY Developed tool to identify critical residue/ligand interactions for drug development Extended multiple sequence viewer (MSV) to analyze similarity at binding sites Added ability to quickly visualize protein domains in MSV	Python Development Intern 6/2019 – 9/2019
	Genentech South San Francisco, CA Synthesized novel peptide library for cellular assays (~20 compounds) Analyzed protein crystal structures to direct rational macrocycle design Analyzed instrumental purity and spectral data (LC-MS, HPLC, NMR)	Protein Engineering Intern 6/2018 – 9/2018
	Chen Lab Stanford University Developed novel near-IR activated caged morpholinos (cMOs) Designed and executed synthesis of cyanine dye-based probe Presented work at Developmental Biology seminar	Undergraduate Research Assistant 2/2017 – 6/2018
	Department of Chemistry University of Chicago Led weekly recitation sections, held office hours, and graded assignments for 3-quarter general chemistry sequence	Teaching Assistant 9/2020 – 6/2021
OTHER	Vice Provost for Teaching and Learning Tutored general chemistry, organic chemistry, and biochemistry classes	Chemistry Tutor 9/2018 – 6/2020
	Stanford Collaborative Orchestra Stanford University Organized over 25 rehearsals and 3 concerts with more than 100 attendees Increased membership by 20% through coordinated recruitment efforts Promoted collaborative musical environment	Co-Producer 6/2017 – 6/2018

AWARDS	Dynamical analysis of the voltage-sensing domain in Ci-VSP	2021 – 2022
	Anton 2 supercomputer, Pittsburgh Supercomputing Center	
	NSF Graduate Research Fellowship	2020 – 2024
	Eckhardt Fellowship	2020 – 2025
	Physical Sciences Division, The University of Chicago	
POSTERS	Stanford Department of Developmental Biology Grant	2017
	Vice Provost of Undergraduate Education, Stanford University	
	Dynamical analysis of voltage-dependent activation in Ci-VSP	2/2022
	Biophysical Society Annual Meeting	San Francisco, CA
	<i>Spencer Guo</i> , Rong Shen, Eduardo Perozo, Benoît Roux, Aaron R. Dinner.	
	Pathways for fold switching of the circadian clock protein KaiB	2/2022
	Biophysical Society Annual Meeting	San Francisco, CA
	Adam Antoszewski, Xiangda Peng, Nanhao Chen, Ning Zhang, Supratim Dey, <i>Spencer Guo</i> , Lee-Ping Wang, Andy LiWang, Tobin R. Sosnick, Aaron R. Dinner	
	Unsupervised Learning on scRNA-seq Data	12/2019
	Final project for CS 221 (Artificial Intelligence)	Stanford, CA
	Analyzed single-cell RNA-sequencing data from zebrafish development to identify and reconstruct developmental states, trajectories, and cell types. Employed unsupervised learning methods including non-negative matrix factorization and latent Dirichlet allocation. Report available here .	
	Development of photoactivable morpholinos with greater dynamic and spectral range	8/2017
	2nd Northern California Fish Research Symposium	Davis, CA
	Sankha Pattanayak, <i>Spencer Guo</i> , Sayumi Yamazoe, James K. Chen.	
SKILLS	PROGRAMMING: Python (NumPy/SciPy), Unix/Bash, C/C++, MATLAB, Java, L ^A T _E X	
	SOFTWARE: GROMACS, Amber, PyMOL, VMD, CP2K, DFTB+, git	
	LANGUAGE: Spanish (proficient), French (proficient), Chinese (conversational)	
INTERESTS	Cooking, classical music, piano, violin	
	Last updated February 13, 2022.	