

# SPENCER GUO

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EDUCATION	<b>The University of Chicago</b> , Chicago, IL	9/2020 – present
	Ph.D in Chemistry	
	ADVISORS: Prof. Aaron Dinner and Prof. Benoît Roux ACADEMIC INTERESTS: Theory and simulation of biochemical systems using techniques from biophysics and statistical mechanics	
	<b>Stanford University</b> , Stanford, CA	9/2016 – 6/2020
	B.S. in Biological Chemistry, minor in Computer Science	GPA: 3.949
	RELEVANT COURSEWORK: Organic Chemistry, Physical Chemistry, Biochemistry, ODEs, PDEs, Computer Systems, Artificial Intelligence, Probability, Quantum Mechanics, Classical Mechanics, Statistical Mechanics	
EXPERIENCE	<b>Markland Lab</b>	Undergraduate Research Assistant
	Stanford University	9/2018 – 6/2020
	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	
	<b>Schrödinger</b>	Python Development Intern
	New York, NY	6/2019 – 9/2019
	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	
	<b>Genentech</b>	Protein Engineering Intern
	South San Francisco, CA	6/2018 – 9/2018
	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)	
	<b>Chen Lab</b>	Undergraduate Research Assistant
	Stanford University	2/2017 – 6/2018
	Developed novel near-IR activated caged morpholinos (cMOs)	
OTHER ACTIVITIES	<b>Department of Chemistry</b>	General Chemistry Teaching Assistant
	University of Chicago	9/2020 – present
	Led weekly recitation sections, held office hours	
	<b>Vice Provost for Teaching and Learning</b>	Chemistry Tutor
		9/2018 – 6/2020
	Tutored general chemistry, organic chemistry, and biochemistry classes	
	<b>Stanford Collaborative Orchestra</b>	Co-Producer
	Stanford University	6/2017 – 6/2018
	Organized over 25 rehearsals and 3 concerts with more than 100 attendees	
	Increased membership by 20% through coordinated recruitment efforts	
	Promoted collaborative musical environment	

<b>AWARDS</b>	<b>NSF Graduate Research Fellowship</b>	2020 – 2023
	<b>Eckhardt Fellowship</b>	2020 – 2025
	Physical Sciences Division, The University of Chicago	
	<b>Stanford Department of Developmental Biology Grant</b>	2017
	Provided through the Vice Provost of Undergraduate Education (\$7000). For development of a cyanine dye-based caged morpholino	
<b>PROJECTS</b>	<b>Unsupervised Learning on scRNA-seq Data</b>	12/2019
	Final project for CS 221 (Artificial Intelligence). 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 <a href="#">here</a> .	
	<b>Development of photoactivable morpholinos with greater dynamic and spectral range</b>	8/2017
	Sankha Pattanayak, Spencer C Guo, Sayumi Yamazoe, James K Chen. Poster presented at 2nd Northern California Fish Research Symposium.	
<b>SKILLS</b>	PROGRAMMING: Python (NumPy/SciPy), Unix/Bash, C/C++, MATLAB, Java, L <sup>A</sup> T <sub>E</sub> X <sup>X</sup> SOFTWARE: GROMACS, PyMOL, VMD, CP2K, DFTB+, Git LANGUAGE: Spanish (proficient), French (proficient), Chinese (conversational)	
<b>INTERESTS</b>	Cooking, classical music, piano, violin (previously a member of Stanford Collaborative Orchestra and Stanford Symphony Orchestra)	

Last updated January 22, 2021.