

SPENCER GUO

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EDUCATION

PH.D. CHEMISTRY, **The University of Chicago** 9/2020 – present
Supervisors: Prof. Aaron DINNER and Prof. Benoît ROUX
Research Interests: Theoretical and computational analysis of protein mechanisms, dynamics of voltage-gating and protein dissociation, machine-learning methods for protein kinetics

M.S. CHEMISTRY, **The University of Chicago** 9/2020 – 9/2021

B.S. IN BIOLOGICAL CHEMISTRY, **Stanford University** 9/2016 – 6/2020
Minor in Computer Science GPA: 3.949

EXPERIENCE

Markland Lab Undergraduate Research Assistant
Stanford University 9/2018 – 6/2020
Simulated IR spectra of liquid water using semi-empirical methods
Benchmarked semi-empirical calculations against results from DFT
Adapted a neural network method to calculate molecular dipoles

Schrödinger 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

Genentech Protein Engineering Intern
South San Francisco, CA 6/2018 – 9/2018
Synthesized novel peptide library for cellular assays
Analyzed protein crystal structures to direct rational macrocycle design
Analyzed instrumental purity and spectral data (LC-MS, HPLC, NMR)

Chen Lab Undergraduate Research Assistant
Stanford University 2/2017 – 6/2018
Developed novel near-IR activated caged morpholinos (cMOs)
Designed and executed synthesis of cyanine dye-based probe
Presented work at Developmental Biology seminar

OTHER

Department of Chemistry Teaching Assistant
University of Chicago 9/2020 – 6/2021
Led weekly recitation sections, held office hours, and graded assignments for 3-quarter general chemistry sequence

Stanford Vice Provost for Teaching and Learning Chemistry Tutor
Stanford University 9/2018 – 6/2020
Tutored general chemistry, organic chemistry, and biochemistry classes

POSTERS

Accurate Estimates of Dynamical Statistics Using Memory 7/2022
Gordon Research Conference Computational Chemistry
Chatipat Lorpai boon, SPENCER GUO, John Strahan, Jonathan Weare, Aaron R. Dinner.

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| Dynamical analysis of voltage-dependent activation in Ci-VSP | 2/2022 |
| <i>Biophysical Society Annual Meeting</i> | San Francisco, CA |
| SPENCER GUO, Rong Shen, Eduardo Perozo, Benoît Roux, Aaron R. Dinner. | |
| Pathways for fold switching of the circadian clock protein KaiB | 2/2022 |
| <i>Biophysical Society Annual Meeting</i> | San Francisco, CA |
| Adam Antoszewski, Xiangda Peng, Nanhao Chen, Ning Zhang, Supratim Dey, SPENCER GUO, Lee-Ping Wang, Andy LiWang, Tobin R. Sosnick, Aaron R. Dinner. | |
| Unsupervised Learning on scRNA-seq Data | 12/2019 |
| <i>Final project for Artificial Intelligence course</i> | Stanford, CA |
| Anthony Degleris, SPENCER GUO, Clara Kelley. Report available here . | |

AWARDS

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| Dynamical analysis of the voltage-sensing domain in Ci-VSP | 2021 – 2022 |
| <i>Anton 2, Pittsburgh Supercomputing Center</i> | |
| NSF Graduate Research Fellowship | 2020 – 2024 |
| <i>National Science Foundation</i> | |
| Eckhardt Fellowship | 2020 – 2025 |
| <i>Physical Sciences Division, The University of Chicago</i> | |
| Stanford Department of Developmental Biology Grant | 2017 |
| <i>Vice Provost of Undergraduate Education, Stanford University</i> | |

TECHNICAL SKILLS

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| PROGRAMMING | (<i>proficient</i>) Python (NumPy/SciPy), bash, L ^A T _E X |
| | (<i>familiar</i>) PyTorch, JAX, C/C++, MATLAB, git |
| SOFTWARE | (<i>proficient</i>) GROMACS, Amber, OpenMM, VMD |
| | (<i>familiar</i>) PyMOL, CP2K, DFTB+ |

INTERESTS

Cooking, classical music, piano, violin

Last updated November 22, 2022.