Tanner Dean
tjdean2@illinois.edu | (757) 705-2554

EDUCATION

Virginia Tech Blacksburg, VA	**Major:** B.S. Biochemistry **Minor:** Chemistry **GPA: 3.79**	2017–2021
University of Illinois Urbana-Champaign (UIUC) Urbana, IL	**Degree:** Ph.D. Biophysics & Quantitative Biology **GPA: 3.97**	2021–Present

RESEARCH

Molecular Dynamics Simulations of Nucleic Acids   2018–2021

Project Focus: Characterize structure, dynamics, and stability of G-Quadruplexes with the Drude polarizable force field.

Department of Biochemistry, Virginia Tech

Principal Investigator: Prof. Justin Lemkul

Markov State Models for Analysis of Membrane Transport   2022-Present

Project Focus: Elucidate the mechanism of transport for the bacterial nitrate transporter NarU with a Markov State Model.

Department of Chemical and Biomolecular Engineering, UIUC

Principal Investigator: Prof. Diwakar Shukla

Deep learning Model for Enzyme-Substrate Prediction (EZSpec)   2022-Present

Project Focus: Development of a state-of-the-art deep learning model for predicting enzymes for novel substrates utilizing sequence and structural information.

Department of Chemical and Biomolecular Engineering, UIUC

Principal Investigator: Prof. Diwakar Shukla

PUBLICATIONS

Salsbury, A. M., **Dean, T. J.**, & Lemkul, J. A. (2020). Polarizable Molecular Dynamics Simulations of Two c-kit Oncogene Promoter G-Quadruplexes: Effect of Primary and Secondary Structure on Loop and Ion Sampling. *Journal of Chemical Theory and Computation*, *16*(5). https://doi.org/10.1021/acs.jctc.0c00191

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Chen, Jiming, **Dean, T. J.**, & Shukla, Diwakar (2024). Contribution of Signaling Partner Association to Strigolactone Receptor Selectivity. *Journal of Physical Chemistry B, 128(3).* https://doi.org/10.1021/acs.jpcb.3c06940

PRESENTATIONS

Structure and Dynamics of the *c-myc* G-Quadruplex

T. Dean, A. Salsbury, J. Lemkul

Poster: *Dennis Dean Undergraduate Research and Creative Scholarship Conference, 2019 Engelpalooza*

Dynamics of the 1:2:1 and 1:6:1 *c-myc* G-Quadrduplexes With the Drude Polarizable Force Field

T. Dean, A. Salsbury, J. Lemkul

Poster: *2020 Annual Meeting of the Biophysical Society*

Predicting the Substrate Specificity and Regioselectivity of Halogenases Using Deep Learning

H. Cui, Y. Su, T. Dean, D. Shukla, H. Zhao

Poster: *2023 AIChE Annual Meeting*

SERVICE AND OUTREACH

Curie & DaVinci (Orion) Living-Learning Community (2019-2020)

- Mentored several freshman biochemistry majors throughout the school year. Helped to solve questions on university, academics, undergraduate research, and end of the year project as assigned project head.

Folding@home Science & Communications Team (2022-present)

- Work on a committee to act as public communication between the scientists who use Folding@home and the citizen scientists who donate their computing time to science.

- Plan social media posts, presentations of ongoing science, and community interactions with the public, as well as communications with volunteer beta testers.

CURIE (UIUC ChBE Summer Camp) Volunteer (2022-present)

- Every Summer, introduce high schoolers to computational chemistry through hosting camp activities around VMD.

- Every Summer, updating the activities to keep up with famous proteins in the news like SARS-CoV2 spike protein, GLP-1 receptor (protein target of Ozempic), and insulin.

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NSF Molecule Maker Lab Institute Summer Camp and After-School Program Volunteer (2022-present)

- Helped to develop a learning module and activities on the importance of enzymes and the application of computational chemistry to rational enzyme design.

- Introduced several after-school groups and summer camps to molecular docking, machine learning, and computational modelling.

AWARDS

- **Dean's List (2017-2021)**
- **Archa Vaughan, Jr. Scholarship (Spring 2020-Spring 2021)**
- **COVID-19 Innovation Competition Seed Grant Round Winners, Treasurer and Proposal Writer**

RELEVANT SKILLS AND COURSEWORK

- **General tools-** Linux, Unix, MS Office suite, Vim

- **Proficient in-** Python, C++

- **Familiar with-** CSS, HTML5, R

- **Professional Software-** NAMD, AMBER, CHARMM, GROMACS, OPENMM, VMD, and PyMOL

- **Relevant Courses-** General Biochemistry, Drug Chemistry, Physical Chemistry, Bioinformatics, Biophysics, Data Science for Chemistry & Engineering

ORGANIZATIONS AND AFFILIATIONS

Bioactivity (2017-2019)
- Conducted work for biochemistry sub-team in protein-ligand docking and initiating production of a bioprinter project.

Folding@home MSMBuilder Software Development Group (2022-present)
- Work on maintaining current code and resolving user issues, as well as implementation of more recent algorithms and methods to the existing codebase.

Illinois Biophysics (2022-present)
- Serve as a member of the Executive Committee planning social events as well as professional symposiums targeted towards members of the Center for Biophysics at UIUC.