Philadelphia, PA
+1 (610) 322 4048
b9andrews@gmail.com
andrewsb8.github.io/littlelink
brian-andrews-phys
US Citizen

Brian Andrews

Education

Ph.D. Candidate, *Drexel University*, Philadelphia, PA. Fall 2018–Present
Physics - Research in Biophysics & Molecular Simulation. Expected Grad: Early 2023.

M.S., *Case Western Reserve University*, Cleveland, OH. Fall 2016–Summer 2018
Physics - Entrepreneurship Track

B.A., *Kenyon College*, Gambier, OH. Fall 2012–Spring 2016
Physics - Math Minor - Scientific Computing Concentration

Research

Publications

6. **Brian Andrews**, Thomas Ruggiero, and Brigita Urbanc. How do salt and lipids affect conformational dynamics of a42 monomers in water? *Phys. Chem. Chem. Phys.*, 25:2566–2583, 2023.

5. **Brian Andrews**, Jose Guerra, Reinhard Schweitzer-Stenner, and Brigita Urbanc. Do molecular dynamics force fields accurately model ramachandran distributions of amino acid residues in water? *Phys. Chem. Chem. Phys.*, **24**, 3259-3279, 2022.

4. **Brian Andrews**, Kaho Long, and Brigita Urbanc. Soluble state of villin headpiece protein as a tool in the assessment of MD force fields. *J. Phys. Chem. B*, **125(25)**, 6897–6911, Jul 2021.

3. B. Milorey, R. Schweitzer-Stenner, **B. Andrews**, H. Schwalbe, and B. Urbanc. Short peptides as predictors for the structure of polyarginine sequences in disordered proteins. *Biophys. J.*, **120**, 662–676, 2021.

2. S. Zhang, **B. Andrews**, R. Schweitzer-Stenner, and B. Urbanc. Intrinsic conformational dynamics of alanine in water/ethanol mixtures: An experiment-driven molecular dynamics study. *J. Phys. Chem. B*, **124(51)**, 11600–11616, 2020.

1. **B. Andrews**, S. Zhang, R. Schweitzer-Stenner, and B. Urbanc. Glycine in water favors the polyproline II state. *Biomolecules*, **10**, 1121, 2020.

Contributed Talks at Conferences and Meetings

3. **B. Andrews**, S. Zhang, R. Schweitzer-Stenner, and B. Urbanc. Assessing the Ability of Molecular Dynamics Force Fields to Capture Conformational Dynamics of Amino Acid Residues in Water. APS March Meeting, 2022.

2. **B. Andrews**, S. Zhang, R. Schweitzer-Stenner, and B. Urbanc. Glycine Shows Preference for Polyproline II Indicating Greater Role for Amino Acid Backbone. APS March Meeting, 2021.

1. **B. Andrews**, K. Long, and B. Urbanc. Examining the Self Assembly of the Villin Headpiece Protein: A Combined Experimental and Molecular Dynamics Study. APS Mid-Atlantic Section Fall Meeting, 2020.

Poster Presentations

2. **B. Andrews**, T. Ruggiero, and B. Urbanc. Analyzing the Conformational Differences of the Intrinsically Disordered Amyloid β-Protein in Varying Lipid and Salt Concentrations. Drexel URCF Showcase, 2022.

1. **B. Andrews**, S. Zhang, R. Schweitzer-Stenner, and B. Urbanc. Hydrogel-forming Ultrashort Oligopeptides in Water/Ethanol Mixtures as a Potential Candidate for Oral Drug Delivery. Merck Emerging Talent Symposium, 2021.

Peer Review Contributions

Journal of Physical Chemistry Letters, Proteins, Biochemistry, Journal of Chemical Information and Modeling

Awards

The Guoliang Yang Research Award, Drexel University, 2022.

Experience

Systems Administrator, *Drexel University*, Philadelphia, PA. Fall 2020–Present
Responsible for upkeep of Physics department servers as well as lab computers.

Teaching Assistant, *Drexel University*, Philadelphia, PA. Fall 2018–Spring 2022
Moderate recitations and lab exercises for students with various levels of physics backgrounds.

Adjunct Instructor, *Salem County Community College*, Salem, NJ. Summer 2019
Taught introductory physics where I designed my own lectures and laboratory experiments.

Operations Intern, *OptoQuest Inc.*, Cleveland, OH. Summer 2017-Summer 2018
Created a machine learning model to predict postoperative risk profiles of patients undergoing eye surgeries.

Data Science Associate, *MedaSync Inc.*, Cleveland, OH. Fall 2017-Summer 2018
Constructed a self-updating machine learning cost prediction model in a production environment (AWS) which estimated medical costs based on diagnosis, projected length of stay, and comorbities.

Skills

Primary Programming Languages: Python, C, Bash, Mathematica, MATLAB, SQL
Software: GROMACS, AMBER, VMD, OpenMM
Computing: Highly Parallelized HPC at Drexel URCF, XSEDE at UT. Proficient with SLURM, TORQUE, Univa Grid Engine. Proficient with distributed Windows and Linux systems.
Development Experience: Git, AWS (EC2, S3, Lambda, MongoDB), Google Data Studio

Open Source Software Contributions

OpenMM. Summer 2022
Add polarizable solvent directly to system. Pull request #3760: `https://github.com/openmm/openmm/`.

pdb-tools. Winter 2021
Pull Request #112: `https://github.com/haddocking/pdb-tools`.

Extracurriculars

Analytics Contributor and Writer, *Pro Lacrosse Talk*, Remote. Summer 2020–Present
Contribute via analytics articles, modeling win probabilities using machine learning, and recording podcast episodes.