Samuel Sledzieski

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RESEARCH		
Flatiron Institute		**New York, NY**
Flatiron Research Fellow, Center for Computational Biology		Sep 2024 – Present
Princeton University		**Princeton, NJ**
Visiting Research Collaborator, Lewis-Sigler Institute for Integrative Genomics		Sep 2024 – Present
Massachusetts Institute of Technology		**Cambridge, MA**
Research Assistant, Computation and Biology Group		Feb 2020 – Aug 2024
Centre Scientifique de Monaco		**Monaco**
Visiting Researcher		Jan 2024 – Feb 2024
Serinus Biosciences		**Cambridge, MA**
Consultant		Feb 2023 – Dec 2023
Microsoft Research		**Redmond, WA**
Research Intern, AI For Good Lab		May 2023 – Oct 2023
Cellarity		**Cambridge, MA**
Machine Learning Intern, Perturbation Biology Group		May 2021 – Aug 2021
MIT Lincoln Laboratory		**Lexington, MA**
Summer Research Program, Advanced Lasercom Systems Group		May 2019 – Aug 2019
University of Connecticut		**Storrs, CT**
Undergraduate Research Assistant, Computational Biology Lab		Jan 2017 – May 2019
Software Developer, Jackson Laboratory for Genomic Medicine		Aug 2018 – May 2019
Undergraduate Research Assistant, Nelson Lab		Oct 2015 – Dec 2016

EDUCATION		
Massachusetts Institute of Technology		**Cambridge, MA**
PhD, Computer Science		2019 – 2024

- Minor in Biological Engineering
- Concentration: Protein language models, protein and drug interactions, protein structure
- Advisor: Dr. Bonnie Berger

SM, Electrical Engineering and Computer Science		2019 – 2021
University of Connecticut		**Storrs, CT**
BS, Computer Science		2015 – 2019

- Minor in Molecular and Cellular Biology
- Concentration: Bioinformatics, Data Science
- Advisor: Dr. Mukul Bansal
- Magna Cum Laude, Honors Scholar

TEACHING		
Massachusetts Institute of Technology		**Cambridge, MA**
Teaching Assistant, Intro to Deep Learning (6.S191)		Winter 2021, 2022, 2023
Teaching Assistant, Machine Learning in Genomics (6.878)		Fall 2021
University of Connecticut		**Storrs, CT**
Teaching Assistant, Theory of Computation		Spring 2018

JOURNAL	
[11]	Ullanat, Jing, **Sledzieski**, Berger, "Learning the language of protein-protein interactions," *Nature Communications*, In Press, 2025.

[10] Schäffer, **Sledzieski**, Cowen, Berger, "Memory-efficient, accelerated protein interaction inference with Blocked, Multi-GPU D-SCRIPT," *Bioinformatics*, 41(10):btaf564, 2025.

[9] Kshirsagar, Meller, Humphreys, **Sledzieski**, Xu, Dodhia, Horvitz, Berger, Bowman, Lavista Ferres, Baker, Baek, "Rapid and accurate prediction of protein homo-oligomer symmetry," *Nature Communications*, 16(2017), 2025.

[8] Singh, Im, Qiu, Macnkess, Gupta, Sorenson, **Sledzieski**, Erlach, Wendt, Nanfack, Bryson, Berger, "Learning the language of antibody hypervariability," *Proceedings of the National Academy of Sciences*, 122(1):e2418918121, 2024.

[7] **Sledzieski**, Kshirsagar, Baek, Berger, Dodhia, Lavista Ferres, "Democratizing protein language odels with parameter-efficient fine-tuning," *Proceedings of the National Academy of Sciences*, 121(26):e2405840121, 2024.

[6] **Sledzieski***, Devkota*, Singh, Cowen, Berger, "TT3D: Leveraging pre-computed protein sequence models to predict protein-protein interactions," *Bioinformatics*, 39(11):btad663, 2023.

[5] Singh*, **Sledzieski***, Bryson, Cowen, Berger, "Contrastive learning in protein language space predicts interactions between drugs and protein targets," *Proceedings of the National Academy of Sciences*, 120(24):e2220778120, 2023.

[4] Kumar, Brenner, **Sledzieski**, Olaosebikan, Lynn-Goin, Putnam, Yang, Lewinski, Singh, Daniels, Cowen, Klein-Seetharaman, "Transfer of knowledge from model organisms to evolutionarily distant non-model organisms: The coral Pocillopora damicornis membrane signaling receptome," *Plos one*, 18(2):e0270965, 2023.

[3] Zaman*, **Sledzieski***, Wu, Bansal, "virDTL: Viral recombination analysis through phylogenetic reconciliation and its application to sarbecoviruses and SARS-CoV-2," *J Comput Biol*, 30(1):3–20, 2023.

[2] Singh*, Devkota*, **Sledzieski**, Berger, Cowen, "Topsy-Turvy: integrating a global view into sequence-based PPI prediction," *Bioinformatics*, 38(Supplement 1):i264-i272, 2022.

[1] **Sledzieski***, Singh*, Cowen, Berger, "D-SCRIPT translates genome to phenome with sequence-based, structure-aware, genome-scale predictions of protein-protein interactions," *Cell Systems*, 12(10):969-982, 2021.

CONFERENCE AND WORKSHOPS

[7] Ocitti, Versavel, **Sledzieski**, Cowen, "RDS: A ReCIPE for overlapping community detection in biological networks," *ACM Conference on Bioinformatics, Computational Biology, and Health Informatics (ACM-BCB)*, 2025.

[6] **Sledzieski**, Versavel, Singh, Ocitti, Devkota, Kumar, Shhpilker, Roger, Yang, Lewinski, Putnam, Berger, Klein-Seetharaman, Cowen, "Decoding the functional interactome of non-model organisms with PHILHARMONIC," *Conference on Research in Computational Molecular Biology (RECOMB)*, 2025.

[5] **Sledzieski**, Kshirsagar, Baek, Berger, Dodhia, Lavista Ferres, "Parameter-efficient fine-tuning of protein language models improves prediction of protein-protein interactions," *Machine Learning for Structural Biology Workshop at NeurIPS*, 2023.

[4] **Sledzieski***, Singh*, Cowen, Berger, "Contrasting drugs from decoys," *Machine Learning for Structural Biology Workshop at NeurIPS*, 2022.

[3] **Sledzieski***, Singh*, Cowen, Berger, "Adapting protein language models for rapid drug-target interaction prediction," *Machine Learning for Structural Biology Workshop at NeurIPS*, 2021.

[2] **Sledzieski***, Singh*, Cowen, Berger, "Sequence-based prediction of protein-protein interactions: a structure-aware interpretable deep learning model," *Conference on Research in Computational Molecular Biology (RECOMB)*, 2021.

[1] **Sledzieski***, Zhang, Mandoiu, Bansal, "TreeFix-TP: Phylogenetic error correction for accurate reconstruction of viral transmission networks," *Pacific Symposium on Biocomputing (PSB)*, 2021.

PREPRINTS

[3] **Sledzieski**, Hanson, "RocketSHP: Ultra-fast proteome-scale prediction of protein dynamics," *bioRxiv*, 2025. 10.1101/2025.06.12.659353.

[2] Vizgaudis, Kumar, Olaosebikan, Roger, Brenner, **Sledzieski**, Yang, Lewinski, Singh, Daniels, Cowen, Klein-Seetharaman, "Insulin Signaling and Pharmacology in Corals," *Authorea Preprints*, 2024. 10.22541/au.170666200.07483513/v1.

[1] Kousi, Boix, Park, Mathys, **Sledzieski**, Peng, Bennett, Tsai, Kellis, "Single-cell mosaicism analysis reveals cell-type-specific somatic mutational burden in Alzheimers Dementia," *bioRxiv*, 2022. 10.1101/2022.04.21.489103.

PRESENTATIONS		
	Machine Learning in Computational Biology (MLCB)	Sep 2025
	Cold Spring Harbor Laboratory Meeting on Network Biology	Mar 2021, Mar 2023, Mar 2025
	Biophysical Society Annual Meeting (BPS)	Jan 2025
	Intelligent Systems for Molecular Biology (ISMB)	Jul 2022, Jul 2023, Jul 2024
	Machine Learning in Structural Biology (MLSB) Workshop at NeurIPS	Dec 2021, Dec 2022, Dec 2023
	Research on Computational Molecular Biology (RECOMB)	Apr 2019, May 2022, Apr 2025
	Pacific Symposium on Biocomputing (PSB)	Jan 2021
	IEEE ICCABS Workshop on Computational Advances for Next Generation Sequencing	Oct 2018
	UConn Fall Frontiers in Undergraduate Research	Oct 2018
	University of Connecticut Bioinformatics Seminar	Mar 2018, Oct 2018

AWARDS & FELLOWSHIPS		
	Flatiron Postdoctoral Research Fellowship	2024 - 2026
	National Science Foundation (NSF) Graduate Research Fellowship	2021 - 2024
	First Place, MIT Intro to Deep Learning Final Project Competition	2020
	New England Scholar, University of Connecticut	2017 – 2019
	Dean's List, College of Liberal Arts and Sciences, School of Engineering	2015 – 2019
	Academic Excellence Scholarship, University of Connecticut	2015 – 2019
	National Merit Scholarship Finalist	2014

SOFTWARE		
	D-SCRIPT	https://github.com/samsledje/D-SCRIPT
	65k+ PyPI downloads	
	ConPLex	https://github.com/samsledje/ConPLex
	27k+ PyPI downloads	
	PHILHARMONIC	https://github.com/samsledje/philharmonic
	5k+ PyPI downloads	
	virDTL	https://github.com/suz11001/virDTL
	TreeFix-TP	https://github.com/samsledje/TreeFix-TP

MENTORING		
	MIT Undergraduate Research Opportunities Program (UROP) Advisor	2021 – 2024
	MIT Research Summer Institute (RSI) Advisor	2022 – 2023
	HackMIT Mentor	2019 – 2022

PEER REVIEW	
	Nature, Nature Methods, Nature Communications, Nature Biotechnology, Current Opinions in Structural Biology, Bioinformatics, Genome Biology, Journal of Computational Biology, PLOS Computational Biology, IEEE Transactions on Artificial Intelligence, NeurIPS, Machine Learning in Structural Biology (MLSB), RECOMB, ISMB

[*CV compiled on 2025-12-12*]