Samuel Sledzieski

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RESEARCH		
Flatiron Institute		**Cambridge, MA**
Flatiron Research Fellow, Center for Computational Biology		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, Machine Learning in Genomics (6.878)		Fall 2021
Teaching Assistant, Intro to Deep Learning (6.S191)		Winter 2021, 2022, 2023
University of Connecticut		**Storrs, CT**
Teaching Assistant, Theory of Computation		Spring 2018

JOURNAL PUBLICATIONS

[7] **Sledzieski**, Kshirsagar, Baek, Berger, Dodhia, Lavista Ferres, "Democratizing Protein Language Models with Parameter-Efficient Fine-Tuning," *Proceedings of the National Academy of Sciences* 121.26

[6] **Sledzieski***, Devkota*, Singh, Cowen, Berger, "TT3D: Leveraging Pre-Computed Protein Sequence Models to Predict Protein-Protein Interactions", *Bioinformatics*, 2023; btad663

[5] **Sledzieski***, Singh*, 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 (2023): e2220778120.

[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 (2023). 10.1371/journal.pone.0270965

[3] Zaman*, **Sledzieski***, Wu, Bansal, "virDTL: Viral recombination analysis through phylogenetic reconciliation and its application to sarbecoviruses and SARS-CoV-2." *Journal of Computational Biology* 30.1 (2023): 3-20.

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

[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 (2021): 969-982.

CONFERENCE AND WORKSHOPS	

[5] **Sledzieski***, Kshirsagar, Baek, Berger, Dodhia, Lavista Ferres, "Parameter-Efficient Fine-Tuning of Protein Language Models Improves Prediction of Protein-Protein Interactions." NeurIPS Workshop on Machine Learning for Structural Biology (MLSB) 2023.

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

[3] **Sledzieski***, Singh*, Cowen, Berger, "Adapting protein language models for rapid DTI prediction" NeurIPS Workshop on Machine Learning for Structural Biology (MLSB) 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: Proceedings, pages 119-130.

PREPRINTS	

[1] Kousi, Boix, Park, Mathys, **Sledzieski**, Peng, Bennett, Tsai, Kellis, "Single-cell mosaicism analysis reveals cell-type-specific somatic mutational burden in Alzheimer's Dementia," *bioRxiv*. posted 22 April 2022, 10.1101/2022.04.21.489103

PRESENTATIONS

Intelligent Systems for Molecular Biology (ISMB)	Jul 2022, Jul 2023, Jul 2024
Cold Spring Harbor Laboratory Meeting on Network Biology	Mar 2021, Mar 2023
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
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 Research Postdoctoral 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
	36k+ PyPI downloads	
	ConPLex	https://github.com/samsledje/ConPLex
	8k+ PyPI downloads	
	PHILHARMONIC	https://github.com/samsledje/philharmonic
	virDTL	https://github.com/suz11001/virDTL
	TreeFix-TP	https://github.com/samsledje/TreeFix-TP

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

PEER REVIEW	*Bioinformatics, Journal of Computational Biology, Nature, NeurIPS, Machine Learning in Structural Biology (MLSB), RECOMB, ISMB*

MEMBERSHIPS & ACTIVITIES	International Society for Computational Biology (ISCB)
	Institute of Electronics Engineers (IEEE)
	Association for Computing Machinery (ACM)
	Tau Beta Pi, Engineering Honor Society (TBΠ)
	Eta Kappa Nu (IEEE-HKN)
	Upsilon Pi Epsilon, Computer Science Honor Society (UPE)

[*CV compiled on 2024-07-26*]