Samuel Sledzieski

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EDUCATION

Massachusetts Institute of Technology, Cambridge, MA

- MS, PhD in Computer Science — 2019 – 2024
- In Progress
  - Advisor: Dr. Bonnie Berger

University of Connecticut, Storrs, CT

- BS in Computer Science — 2015 – 2019
  - Concentration: Bioinformatics, Data Science
  - Advisor: Dr. Mukul Bansal
  - Magna Cum Laude
  - Honors Scholar
- Minor in Molecular and Cellular Biology

RESEARCH EXPERIENCE

Computation and Biology Group, Massachusetts Institute of Technology, Cambridge, MA

- Research Assistant — Feb 2020 – Present
  - Develop of machine learning methods for prediction of protein-protein interaction from primary amino acid sequence
  - Incorporate structure-aware sequence embeddings to learn inter-protein residue contact maps
  - Predict protein interaction networks and functional modules in human and coral

Advanced Lasercom Systems and Operations Group, MIT Lincoln Laboratory, Lexington, MA

- Summer Research Program Intern — May 2019 – Aug 2019
  - Developed of a test bed for automatic calibration of high speed infrared cameras under multiple focal plane array settings
  - Implemented a large hardware and software system to automatically collect calibration data and perform optical power calculations
  - Calibration enables the use of cameras to measure optical power emitted by a lasercom terminal
  - Supervisor: Jonah Tower

Computational Biology Lab, University of Connecticut, Storrs, CT

- Undergraduate Research Assistant — Jan 2017 – May 2019
  - Project: Phylogenetic Error Correction for Viral Transmission Inference
  - Developed and tested software for accurate phylogenetic reconstruction by using multiple viral sequences per infected individual
  - Supervisors: Dr. Mukul Bansal and Dr. Ion Mandoiu

Senior Design Project, University of Connecticut, Storrs, CT

- Software Developer — Aug 2018 – May 2019
  - Designed and developed a web interface for a CNV-calling tool developed by the Jackson Laboratory
  - Designed for use by research scientists and in-hospital physicians
  - Supervisors: Dr. Dong-Guk Shin and Dr. Wan-Ping Lee

Nelson Lab, University of Connecticut, Storrs, CT

- Undergraduate Research Assistant — Oct 2015 – Dec 2016
  - Developed proficiency in modern biology techniques
  - Focused on embryonic stem cell development
  - Supervisor: Dr. Craig Nelson

TEACHING EXPERIENCE

University of Connecticut, Storrs, CT

- Teaching Assistant, Theory of Computation — Spring 2018
  - Held office hours to assist with instruction of 70 students
  - Graded homework assignment and exams

PUBLICATIONS

[4] Zaman, **Sledzieski**, Wu, Bansal, "On the reticulate evolutionary history of the SARS-CoV-2 genome," In preparation.

[3] **Sledzieski**, Singh, Cowen, Berger, "A structure-aware deep model for prediction of protein-protein interactions and contact maps," Under Review, RECOMB 2021.

[2] Kousi, Boix, Mathys, Park, **Sledzieski**, Bennett, Tsai, Kellis, "Single-cell mosaicism analysis reveals cell-type-specific somatic mutational burden in AD," Under Review, Nature.

[1] **Sledzieski**, Zhang, Mandoiu, Bansal, "TreeFix-TP: Phylogenetic Error Correction for Accurate Reconstruction of Viral Transmission Networks," Accepted for publication at PSB 2021.

PRESENTATIONS

RECOMB 2019 Poster Presentation

- "TreeFix-TP: Phylogenetic Error Correction for Infectious Disease Transmission Network Inference" — Apr 2019

IEEE ICCABS Workshop on Computational Advances for Next Generation Sequencing

- "Phylogenetic Error Correction for Accurate Reconstruction of Viral Transmission Networks" — Oct 2018

UConn Fall Frontiers in Undergraduate Research

- "TreeFix-VP: Phylogenetic Error Correction for Transmission Network Inference" — Oct 2018

University of Connecticut Bioinformatics Seminar

- "TreeFix-VP: Phylogenetic Error Correction" — Mar 2018, Oct 2018

AWARDS & SCHOLARSHIPS

- First Place, MIT 6.S191 Intro to Deep Learning Final Project Competition — Feb 2020
- Dean's List, College of Liberal Arts and Sciences, School of Engineering — 2015 – 2019
- Academic Excellence Scholarship, University of Connecticut — 2015 – 2019
- New England Scholar, University of Connecticut — 2017 – 2019
- Third Place Machine Learning, United Health Group Global Hackathon — Jun 2017
- Third Place Overall, HampHack — Apr 2017
- Third Place Overall, HackUConn — Mar 2017

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)
- Kappa Kappa Psi, National Honorary Band Fraternity (KKΨ)
  - Parliamentarian, 2018-2019
- Upsilon Pi Epsilon, Computer Science Honor Society (UPE)
- University of Connecticut Marching Band — 2015 – 2019
- Tri-M Music Honor Society — 2010 – 2015

INDUSTRY EXPERIENCE

Optum Technology, Boston, Massachusetts, USA

- Technology Development Project Intern — Jun 2017 – Aug 2017
  - Development of a machine learning pipeline for automatic claim adjudication

LANGUAGES

- English: Native language
- Spanish: Limited Working Proficiency (speaking, reading, writing)

REFERENCES

- **Dr. Bonnie Berger**
  Simons Professor of Mathematics
  Massachusetts Institute of Technology
  Computer Science and Artificial Intelligence Laboratory, Cambridge, MA 02139, USA
  bab@mit.edu • +1 (617) 253-1827

- **Dr. Mukul Bansal**
  Associate Professor of Computer Science and Engineering
  University of Connecticut
  371 Fairfield Way, Storrs, CT 06269, USA
  mukul.bansal@uconn.edu • +1 (860) 486-2572

- **Dr. Lenore Cowen**
  Professor of Computer Science
  Tufts University
  161 College Avenue, Medform, MA 02155, USA
  cowen@cs.tufts.edu • +1 (860) 486-257

COURSES

- **Computer Science**
  - Algorithms
  - Artificial Intelligence
  - Big Data Analytics
  - Bioinformatics
  - Computational Genomics
  - Computational Geometry
  - Computational Problems in Evolutionary Genomics
  - Data Structures and Object Oriented Programming
  - Inference and Information
  - Machine Learning
  - Advanced Computational Biology
  - Software Engineering
  - Systems Programming
  - Theory of Computation
- **Math and Statistics**
  - Calculus I & II, Multivariable Calculus
  - Introduction to Statistics I & II
  - Statistical Methods
  - Linear Algebra
  - Optimization Methods
- **Biology and Chemistry**
  - Biochemistry
  - Cell Biology
  - Genetics
  - Molecular Evolution
  - Organic Chemistry
  - Phylogenetics

[*CV compiled on 2020-10-08*]