CALEB N. ELLINGTON

calebellington.com

7603 Gates-Hillman Center
School of Computer Science
Carnegie Mellon University
Pittsburgh, PA 15213

PUBLICATIONS

Lengerich, Ben, Caleb Ellington, Bryon Aragam, Eric P. Xing, and Manolis Kellis. "**NOTMAD: Estimating Bayesian Networks with Sample-Specific Structures and Parameters.**" ArXiv:2111.01104 [Cs, Stat], November 1, 2021. http://arxiv.org/abs/2111.01104.

Chen, Xinshi, Haoran Sun, Caleb Ellington, Eric Xing, and Le Song. "**Multi-Task Learning of Order-Consistent Causal Graphs.**" In Advances in Neural Information Processing Systems, 34:11083–95. Curran Associates, Inc., 2021. https://proceedings.neurips.cc/paper/2021/hash/5c3a3b139a11689e0bc55abd95e20e39-Abstract.html.

Lengerich, Benjamin J, Mark E Nunnally, Yin Aphinyanaphongs, Caleb Ellington, and Rich Caruana. "**Automated Interpretable Discovery of Heterogeneous Treatment Effectiveness: A COVID-19 Case Study.**" J. Biomed. Inform., April 30, 2022, 104086. https://doi.org/10.1016/j.jbi.2022.104086.

Ellington, Caleb, Ben Lengerich, Manolis Kellis, Eric P. Xing. "**Graph-based Molecular Profiles of Cancer.**" In Preparation

Ellington, Caleb, Ben Lengerich, Manolis Kellis, Eric P. Xing. "**Sample-specific Correlation Graphs.**" In Preparation

Ellington, Caleb, Xiangchen Song, Lingjing Kong, Hanlin Zhang, Haohan Wang, Eric P. Xing. "**Statistically Sound Strategies for Personalized Modeling**" In Preparation

SOFTWARE

contextualized.ml: A statistical machine learning toolbox for estimating models, distributions, and functions with context-specific parameters.

POSITIONS

❖	**Ph.D. Student in Computational Biology, Research Assistant** *SAILING Lab, Carnegie Mellon University*	Sept 2020 - Present Pittsburgh, PA
❖	**Research Assistant** *Baker Lab, Institute for Protein Design, University of Washington*	Jan 2019 - June 2020 Seattle, WA
❖	**Software Engineer Intern** *Indeed.com*	June 2019 - Aug 2019 Austin, TX
❖	**Research Assistant** *Klavins Lab, Automated Bio-Fabrication Facility, University of Washington*	Jan 2017 - Dec 2018 Seattle, WA
❖	**Biomedical Engineering Consultant** *Dhulikhel Hospital / Bioengineering Department, University of Washington*	Aug 2018 - Sept 2018 Dhulikhel, Nepal
❖	**Software Engineer Intern** *Amazon.com*	June 2018 - Aug 2018 Seattle, WA
❖	**Software Engineer Intern** *Inscripta Biotechnology*	June 2017 - Aug 2017 Boulder, CO

EDUCATION

Carnegie Mellon University   Sept 2020 - Present
Ph.D. Student in Computational Biology   Pittsburgh, PA
Advised by Eric P. Xing

University of Washington   Sept 2016 - Jun 2020
B.Sc. Computer Science   Seattle, WA
B.Sc. Bioengineering (Honors)

AWARDS

- **GRFP Honorable Mention (NSF)**   Apr 2020
    Project: *Deep Generative Models for Ligand-based Protein Design*
- **Fulbright Semifinalist (Fulbright)**   Apr 2020
    Project: *Freelance Ambulances: Integrating Nepal's private transportation with emergency services*
- **Levinson Emerging Scholar (Washington Research Foundation)**   Sept 2019
    Awarded to highly motivated students demonstrating exceptional communication skills pursuing advanced bioscience careers.
- **Husky 100 Awardee (University of Washington)**   Mar, 2019
    The Husky 100 recognizes 100 students (graduate and undergraduate) from all UW campuses who are making the most of their time at UW.
- **Mary Gates Research Scholar (University of Washington)**   Feb, 2018
    - Project: *Data-Driven Genetic Engineering with Hydra vulgaris*
    - Awarded for strong academic merit, good mentor relationships, intensity of research experience, and long-term impact of the proposed project.

TEACHING & MENTORING

Teaching Assistant, 10-701 Introduction to Machine Learning (Ph.D.)   Jan 2022 - May 2022
Instructors: Henry Chai, Maria Balkan   Carnegie Mellon University

Teaching Assistant, 02-319 Genetics and Epigenetics of the Brain (M.S.)   Aug 2021 - Dec 2021
Instructors: Andreas Pfenning   Carnegie Mellon University

Current Mentees
- Juwayni Lucman, Artificial Intelligence MS Student, MBZUAI
- Omar Alsuwaidi, Artificial Intelligence MS Student, MBZUAI
- Wesley Lo, Mathematics BS Student, MIT
- Ikechukwu Daniel Adebi, Mechanical Engineering MEng Student, MIT

LEADERSHIP, VOLUNTEERING, & FUNDRAISING

Senator, CPCB Graduate Student Association   Sept 2021 - Current
Founding director of the U. Pitt-CMU CompBio Hackathon   Pittsburgh, PA

President, Educator, Iron Phi, Phi Delta Theta, Washington Alpha Nov 2017 - Nov 2019
$49,000 to the Service for Sight Foundation   Seattle, WA
$1,000 to the Live Like Lou Foundation

Eagle Scout, *Boy Scouts of America*   Nov 2015
Construction of the U. Texas Field Laboratory's Research Pier   Austin, TX

Run-to-the-Sun Overnight Relay, Beyond Batten Foundation   Apr 2015
$500 to the Beyond Batten Foundation   Austin, TX

PRESENTATIONS & MEDIA (Available on YouTube, linked at calebellington.com)

- Multi-task Learning of Consistent-Order Causal Graphs (NeurIPS)   Dec 2021
- Mixed Feelings: Recognizing, Representing, and Interpolating Human Emotion Dec 2020
- Deep Learning for Contact Prediction in *de novo* Protein Models (UW Research Symposium) May 2020
- Bioscience Python Tutorials 1-4: Protein Sequence Alignment CLI (YouTube)   May 2020

SKILLS

Programming: Python (9 yrs), Java (7 yrs), C++ (2 yrs), PyTorch (2 yrs), Tensorflow/Keras (2 yrs), MySQL (2 yrs), React.js (2 yrs), C, Ruby, Django, Git, Superset, AWS, Jira, Linux/Unix, Bash
Languages: Beginner II Mandarin