Pawel Franciszek Przytycki

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EDUCATION

PhD Computer Science / Princeton University / 2018
Thesis: Algorithms for deciphering cancer genomes: from differential mutation to differential allele specific expression *Advisor*: Dr. Mona Singh

MA Computer Science / Princeton University / 2013

BA Computer Science / Columbia University / 2011

RESEARCH POSITIONS

Assistant Professor / Boston University / 2022-present
Faculty of Computing and Data Sciences

Core Faculty / Boston University / 2022-present
Graduate Program in Bioinformatics

Core Faculty / Boston University / 2022-present
Multicellular Design Program (BU Biological Design Center)

Member / Boston University / 2022-present
Genome Science Institute

Bioinformatics Fellow / J. David Gladstone Institutes at UCSF / 2018-2022
Advisor: Dr. Katie Pollard

Graduate Research Assistant / Princeton University / 2012-2018
Advisor: Dr. Mona Singh

Undergraduate Research Assistant / Columbia University / 2009-2011
Advisor: Dr. Chris Wiggins

Research Intern / National Institutes of Health, National Cancer Institute / 2005-2009
Advisor: Dr. Jacek Capala

PEER-REVIEWED PUBLICATIONS

1. **PF Przytycki** and KS Pollard. "Hierarchical annotation of eQTLs by H-eQTL enables identification of genes with cell type-divergent regulation." *Genome Biology* (2024).
2. M Alexanian, A Padmanabhan, T Nishino, JG Travers, L Ye, A Pelonero, CY Lee, N Sadagopan, Y Huang, K Auclair, A Zhu, Y An, CA Ekstrand, C Martinez, B Gonzalez Teran, WR Flanigan, CK-S Kim, K Lumbao-Conradson, Z Gardner, L Li, MW Costa, R Jain, I Charo, AJ Combes, SM Haldar, KS Pollard, RJ Vagnozzi, TA McKinsey, **PF Przytycki**[+], and D Srivastava. "Chromatin remodelling drives immune cell–fibroblast communication in heart failure." *Nature* (2024). ([+]computational lead)
3. C Deng, S Whalen, M Steyert, R Ziffra, **PF Przytycki**, F Inoue, DA Pereira, D Capauto, S Norton, FM Vaccarino, PsychENCODE Consortium, AA Pollen, TJ Nowakowski, N Ahituv, and KS Pollard. "Massively parallel characterization of regulatory elements in the developing human cortex." *Science* (2024).
4. C Wen, M Margolis, R Dai, P Zhang, **PF Przytycki**, DD Vo, A Bhattacharya, N Matoba, C Jiao, M Kim, E Tsai, C Hoh, N Aygün, RL Walker, C Chatzinakos, D Clarke, H Pratt, PsychENCODE Consortium, MA Peters, M Gerstein, NP Daskalakis, Z Weng, AE Jaffe, JE Kleinman, TM Hyde, DR

Weinberger, NJ Bray, N Sestan, DH Geschwind, K Roeder, A Gusev, B Pasaniuc, JL Stein, MI Love, KS Pollard, C Liu, and MJ Gandal. "Cross-ancestry atlas of gene, isoform, and splicing regulation in the developing human brain." *Science* (2024).

5. KC Keough, S Whalen, F Inoue, **PF Przytycki**, T Fair, C Deng, M Steyert, H Ryu, K Lindblad-Toh, E Karlsson, TJ Nowakowski, NJ Ahituv, AA Pollen, KS Pollard, and the Zoonomia Consortium. "Three-dimensional genome re-wiring in loci with Human Accelerated Regions." *Science* (2023).
6. AP Blair, RK Hu, EN Farah, NC Chi, KS Pollard, **PF Przytycki***, IS Kathiriya*, and BG Bruneau*. "Cell Layers: uncovering clustering structure in unsupervised single-cell transcriptomic analysis." *Bioinformatics Advances* (2022). (*equal contribution)
7. **PF Przytycki** and KS Pollard. "CellWalkR: An R Package for integrating and visualizing single-cell and bulk data to resolve regulatory elements." *Bioinformatics* (2022).
8. RS Ziffra, CN Kim, JM Ross, A Wilfert, TN Turner, M Haeussler, AM Casella, **PF Przytycki**, KC Keough, D Shin, D Bogdanoff, A Kreimer, KS Pollard, SA Ament, EE Eichler, N Ahituv, and TJ Nowakowski. "Single-cell epigenomics reveals mechanisms of human cortical development." *Nature* (2021).
9. M Alexanian, **PF Przytycki**[+], R Micheletti, A Padmanabhan, L Ye, JG Travers, BG Teran, AC Silva, Q Duan, SS Ranade, F Felix, R Linares-Saldana, L Li, CY Lee, N Sadagopan, Y Huang, G Andreoletti, R Jain, TA McKinsey, MG Rosenfeld, C Gifford, KS Pollard, SM Haldar, and D Srivastava. "A transcriptional switch governs fibroblast activation in heart disease." *Nature* (2021). ([+]computational lead)
10. **PF Przytycki** and KS Pollard. "CellWalker integrates single-cell and bulk data to resolve regulatory elements across cell types in complex tissues." *Genome Biology* (2021).
11. E Markenscoff-Papadimitriou, S Whalen, **P Przytycki**, R Thomas, F Binyameen, TJ Nowakowski, SJ Sanders, MW State, KS Pollard, and JL Rubenstein. "A Chromatin Accessibility Atlas of the Developing Human Telencephalon." *Cell* (2020).
12. **PF Przytycki** and M Singh. "Differential Allele-Specific Expression Uncovers Breast Cancer Genes Dysregulated by *Cis* Noncoding Mutations." *Cell Systems* (2020).
13. **PF Przytycki** and M Singh. "Differential analysis between somatic mutation and germline variation profiles reveals cancer-related genes." *Genome Medicine* (2017).
14. J Zheng, D Zhang, **PF Przytycki**, R Zielinski, J Capala, and TM Przytycka. "SimBoolNet - A Cytoscape Plugin for Dynamic Simulation of Signaling Networks." *Bioinformatics* (2010)
15. R Zielinski*, **PF Przytycki***, J Zheng, D Zhang, TM Przytycka, and J Capala. "The crosstalk between EGF, IGF, and Insulin cell signaling pathways - computational and experimental analysis." *BMC, Systems Biology* (2009). (*equal contribution)

PREPRINTS

1. Z Hu, **PF Przytycki**, and KS Pollard. "CellWalker2: multi-omic discovery of hierarchical cell type relationships and their associations with genomic annotations." *bioRxiv* (2024).
2. EK Lee, AE Gul, G Heller, A Lakunina, S Jaramillo, **PF Przytycki**, and C Chandrasekaran. "PhysMAP - interpretable in vivo neuronal cell type identification using multi-modal analysis of electrophysiological data." *bioRxiv* (2024).
3. S Ranade, S Whalen, I Zlatanova, T Nishino, B van Soldt, L Ye, A Pelonero, LG Wallace, Y Huang, M Alexanian, A Padmanabhan, B Gonzalez Teran, **P Przytycki**, MW Costa, CA Gifford, B Black, KS Pollard, and D Srivastava. "Single Cell Epigenetics Reveal Cell-Cell Communication Networks in Normal and Abnormal Cardiac Morphogenesis." *bioRxiv* (2022).

HONORS AND AWARDS

Distinguished Achievement in Science Award / Gladstone Institutes / 2021

Robert and Linda Mahley Career Advancement Award / Gladstone Institutes / 2020

NSF Graduate Research Fellowship Program / NSF / 2013-2018

Facebook API Award / HackPrinceton / 2012

I.I. Rabi Science Scholar / Columbia University / 2007-2011

TEACHING EXPERIENCE

Instructor / Boston University / 2023-present
DS596 Special Topics in Natural, Biological, and Medical Sciences: Introduction to Bioinformatics
Developed and taught Fall 2024
DS122 Foundations of Data Science III
Developed and taught Spring 2023, Fall 2023, and Spring 2025

Course Director / Boston University / 2022
BF820 Bioinformatics Research Opportunities

Guest Lecturer / UCSF / 2020
BMI206 Statistical Methods for Bioinformatics

Instructor / Princeton Prison Teaching Initiative / 2013-2015
MAT033 Pre-Algebra, MAT037 Beginning Algebra, MAT135 Intermediate/College Algebra

Assistant Instructor / Princeton University / 2012-2013
COS126 General Computer Science

MENTORING EXPERIENCE

PhD Students / Boston University
Ruohong (Roselle) Wang / Bioinformatics / 2025-present
Anthony Garza / Bioinformatics, Kilachand Fellow / 2024-present
Yeting Li / Bioinformatics / 2024-present
Ameya Gokhale / Computing & Data Sciences / 2023-present
Justin Moy / Bioinformatics / 2023 – present

Master's Students / Boston University
Carlos Garcia Padilla / Computing & Data Sciences / 2025-present

Undergraduate Students / Boston University
Alicja Mahr / Computing & Data Sciences / 2023-2025
Marianne Palmieri / Biomedical Engineering / 2022-2024
Nicholas Meeks / Computing & Data Sciences / 2023-2024
Rebecca Anderson / BRITE REU Student / 2023
Lillian Snow / Biomedical Engineering / 2022-2023
Alex Lavaee / Computing & Data Sciences / 2022-2023

High School Students / Boston University
Lakshika Kamalaganesh / 2024

MARC Award Mentor / Gladstone Institutes / 2020
Maximizing Access to Research Careers (MARC) Award undergraduate summer intern

PUMAS Mentor / Gladstone Institutes / 2019
Promoting Underrepresented Minorities Advancing in the Sciences (PUMAS) undergraduate summer intern

ACADEMIC SERVICE

Doctoral Oversight Committee / Boston University Faculty of Computing & Data Sciences, 2024-present

Quantitative Biology Seminar Series Co-Organizer / Boston University Faculty of Computing & Data Sciences and Graduate Program in Bioinformatics, 2024-present

Executive Committee / Boston University Graduate Program in Bioinformatics, 2022-present

Program Committee / RECOMB 2024, RECOMB 2025

Invited referee / *RECOMB, ISMB, PLOS Computational Biology, Journal of Computational Biology, Scientific Reports, Bioinformatics,* and *Nature Computational Science, Genome Research*

Travel Fellowships Chair / RECOMB 2024

Faculty Panel / 2023 Dissertation Writing Institute, Boston University, 2024 Trainee to Tenure Track, Gladstone Institutes, UCSF, and Genentech

Data liaison / psychENCODE consortium 2018-2022

Poster reviewer / RECOMB 2015

Student volunteer / ISMB 2014