Justin Hong

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Education

2019 – 2020

M.S. Electrical Engineering and Computer Science
UNIVERSITY OF CALIFORNIA, BERKELEY, *4.00/4.00*
Advisors: Yun Song, Kannan Ramchandran
Thesis: A Likelihood-based Deconvolution of Bulk Gene Expression Data Using Single-cell References [3].

2015 – 2019

B.A. Computer Science & Molecular and Cellular Biology (emph. Immunology)
UNIVERSITY OF CALIFORNIA, BERKELEY, *3.95/4.00*
Graduated with Highest Distinction and EECS Department Honors.

Research Experience

2021 – Present

Research Engineer. YOSEF LAB, UC BERKELEY
Advisor: Nir Yosef. Developed open-source software for deep probabilistic modeling of single cell omics data, `scvi-tools` [2].

2019 – 2020

Graduate Student Researcher. SONG LAB, UC BERKELEY
Advisor: Yun Song. Developed a method for the deconvolution of bulk RNA-seq samples using a single-cell RNA-seq reference [1].

2018 – 2019

Undergraduate Student Researcher. BLISS LAB, UC BERKELEY
Advisor: Kannan Ramchandran. Developed a robust method for the federated learning regime in the presence of adversaries [4].

2016 – 2017

Research Assistant. BREM LAB, UC BERKELEY
Advisor: Rachel Brem. Trained in experimental wet lab protocols concerning gene transformations and knockouts in yeast.

Honors & Awards

2020	Outstanding Graduate Student Instructor Award, UC Berkeley
2019	Graduation with Highest Distinction, UC Berkeley (equiv. *summa cum laude*)
2019	EECS Honors, UC Berkeley
2018	Jim and Donna Gray Scholarship, UC Berkeley
2017	Upsilon Pi Epsilon, UC Berkeley

Publications

1. Dan D Erdmann-Pham*, Jonathan Fischer*, **Hong, Justin**, and Yun S Song. "Likelihood-based deconvolution of bulk gene expression data using single-cell references". In: *Genome Research* 31.10 (2021), pp. 1794–1806. [PDF].

2. Adam Gayoso*, Romain Lopez*, Galen Xing*, Pierre Boyeau, Katherine Wu, Michael Jayasuriya, Edouard Mehlman, Maxime Langevin, Yining Liu, Jules Samaran, Gabriel Misrachi, Achille Nazaret, Oscar Clivio, Chenling Xu, Tal Ashuach, Mohammad Lotfollahi, Valentine Svensson, Eduardo da Veiga Beltrame, Carlos Talavera-Lopez, Lior Pachter, Fabian J Theis, Aaron Streets, Michael I Jordan, Jeffrey Regier, and Nir Yosef. "scvi-tools: a library for deep probabilistic analysis of single-cell omics data". In: *bioRxiv* (2021). [PDF].

3. **Hong, Justin**, Dan D Erdmann-Pham, Jonathan Fischer, and Yun S Song. "A Likelihood-based Deconvolution of Bulk Gene Expression Data Using Single-cell References". Master's Thesis. University of California, Berkeley, 2021. [PDF].

4. Avishek Ghosh*, **Justin Hong***, Dong Yin, and Kannan Ramchandran. "Robust Federated Learning in a Heterogeneous Environment". In: *arXiv* (2019). [PDF].

Software

2021 –	scvi-tools – A library for deep probabilistic analysis of single-cell omics data.
2019 – 2020	RNA-Sieve – A package for deconvolution of bulk RNA-seq data with single-cell RNA-seq references.

Teaching and mentorship experience

2018–2019	Head Graduate Student Instructor. UC BERKELEY *Course Title*: Probability and Random Processes (EE 126) *Responsibilities*: Developed course content, assignments, and exams. Organized staff of over ten student instructors. Lectured as a substitute. Coordinated the course transition to fully online during the COVID-19 pandemic.
2017–2018	Undergraduate Student Instructor. UC BERKELEY *Course Title*: Probability and Random Processes (EE 126) *Responsibilities*: Taught discussions sections, led office hours, created course content.
2016–2017	Undergraduate Student Instructor / Course Tutor, UC BERKELEY *Course Title*: Structure and Interpretation of Computer Programs (CS 61A) *Responsibilities*: Taught discussion sections, led office hours, graded exam content.

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[2] Co-authorship added to journal submission, in-press at *Nature Biotechnology*.

Industry Experience

2020 – 2021   Software Engineer. Nuro
Developed infrastructure software for the evaluation and introspection of the autonomy software stack. Mentored new hires and a summer intern.

Summer 2019   Software Engineer Intern. Nuro
Developed software for remote large-scale bot fleet management.

Summer 2018   Software Engineer Intern. Palantir
Developed code editing and execution software within the Foundry platform.

Summer 2017   Software Engineer Intern. Affinity
Developed software for customer relationship management in the venture capital space.