Hu Jin

Curriculum Vitae

Department of Biomedical Informatics, Harvard Medical School
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Education

2013–2018 **University of Illinois Urbana-Champaign**, Urbana, IL
Ph.D. in Physics, Overall GPA: 3.90/4.0
Advisor: Jun S. Song
Committee: Aleksei Aksimentiev, Thomas E. Kuhlman, Seppe Kuehn

2009–2013 **Zhejiang University**, Hangzhou, China
B.S. in Physics, Overall GPA: 3.92/4.0, Average score: 91.64/100
Science and Engineering Honors Class (top 5%), Chu Kochen Honors College

Professional Experience

Research

2018–present **Harvard Medical School**, Boston, MA
Research Fellow in Biomedical Informatics, Department of Biomedical Informatics
Advisor: Peter J. Park

2014–2018 **University of Illinois Urbana-Champaign**, Urbana, IL
Graduate Research Assistant, Department of Physics & Institute for Genomic Biology
Advisor: Jun S. Song

2012–2013 **Peking University**, Beijing, China
Undergraduate Research Assistant, School of Physics
Advisor: Jian Wei

July-August 2012 **University of California Davis**, Davis, CA
Visiting Student, Department of Physics
Advisor: Rena Zieve

Teaching

2013–2014 **University of Illinois Urbana-Champaign**, Urbana, IL
Graduate Teaching Assistant, Department of Physics

July 2016 & 2017 **University of Illinois Urbana-Champaign**, Urbana, IL
Lecturer, Center for the Physics of Living Cells (CPLC) Summer School

Honors and Awards

2018 Drickamer Research Fellowship, University of Illinois Urbana-Champaign

2015 Physics Graduate Travel Award, University of Illinois Urbana-Champaign

2014 University Fellowship, University of Illinois Urbana-Champaign

2012 Outstanding Research Award in the Global Research Experience in Advanced Technologies (GREAT) program, University of California Davis.

2009-2010 National Scholarship of the People's Republic of China, Zhejiang University

Publications

Google Scholar: https://scholar.google.com/citations?user=7DCui3QAAAAJ&hl=en

*co-first authors, §co-corresponding authors

Preprints/In Review/In Revision

[4] Chu C, Ljungstrom V, Tran A, **Jin H**, Park PJ. "Contribution of de novo retroelements to birth defects and childhood cancers." medRxiv:10.1101/2024.04.15.24305733.

[3] Kim YN*, Gulhan DC*, **Jin H**, Glodzik D, Park PJ. "Recent advances in genomic approaches for the detection of homologous recombination deficiency." In revision at *Cancer Research and Treatment*.

[2] Gulhan DC, Viswanadham V, Muyas F, **Jin H**, Foote MB, Lee JJ, Barras D, Ljungstrom V, Jung YL, Rousseau BC, Galor A. "Predicting response to immune checkpoint blockade therapy among mismatch repair-deficient patients using mutational signatures." In revision at *Nature Communications*, medRxiv:10.1101/2024.01.19.24301236.

[1] Raven A, Gilroy K, **Jin H**, Leslie H, Hall H, Ridgway R, Ford C, Gulhan D, Vlahov N, Mills M, Sphyris N, Müller M, May S, Nixon C, Barker N, Clevers H, Ivaska I, Miller C, Jamieson N, Bird T, Park P, Sansom O. "Hepatocyte identity and zonal position determine tumourigenic potential of mutant β-catenin." In revision at *Nature*, https://doi.org/10.21203/rs.3.rs-2956888/v1.

Published/Accepted

[12] Ganz J*, Luquette LJ*, Bizzotto S*, Miller MB, Zhou Z, Bohrson CL, **Jin H**, Tran AV, Viswanadham VV, McDonough G, Brown K, Chahine Y, Chhouk B, Galor A, Park PJ§, Walsh CA§. "Contrasting somatic mutation patterns in aging human neurons and oligodendrocytes." *Cell* 187, 1–16 (2024).

[11] **Jin H***, Gulhan DC*, Geiger B, Ben-Isvy D, Geng D, Ljungström V, Park PJ. "Accurate and sensitive mutational signature analysis with MuSiCal." *Nature Genetics* 56, 541–552 (2024).
Highlighted in *News & Views* at *Nature Genetics*.

[10] Chu C, Lin EW, Tran A, **Jin H**, Ho NI, Veit A, Cortes-Ciriano I, Burns KH, Ting DT, Park PJ. "The landscape of human SVA retrotransposons." *Nucleic Acids Research* 51, 11453–11465 (2023).

[9] Lee JJ§, Jung YL†, Cheong TC†, Espejo Valle-Inclan J, Chu C, Gulhan DC, Ljungström V, **Jin H**, Viswanadham VV, Watson EV, Cortés-Ciriano I, Elledge SJ, Chiarle R, Pellman D, Park PJ§. "ERα-associated translocations underlie oncogene amplifications in breast cancer." *Nature* 618, 1024–1032 (2023). (†*equal contributions*)

[8] Luquette LJ*, Miller MB*, Zhou Z*, Bohrson CL, Zhao Y, **Jin H**, Gulhan D, Ganz J, Bizzotto S, Kirkham S, Hochepied T, Libert C, Galor A, Kim J, Lodato MA, Garaycoechea JI, Gawad C, West J, Walsh CA§, Park PJ§. "Single-cell genome sequencing of human neurons identifies somatic point mutation and indel enrichment in regulatory elements." *Nature Genetics* 54, 1564-71 (2022).

[7] Bulut-Karslioglu A§, **Jin H**, Kim YK, Cho B, Guzman-Ayala M, Williamson AJ, Hejna M, Stötzel M, Whetton AD, Song JS, Ramalho-Santos M§. "Chd1 protects genome integrity at promoters to sustain hypertranscription in embryonic stem cells." *Nature Communications* 12, 4859 (2021).
I led the bioinformatics analysis in this project.

[6] Finnegan AI*, Kim S*, **Jin H**, Gapinske M, Woods WS, Perez-Pinera P§, Song JS§. "Epigenetic engineering of yeast reveals dynamic molecular adaptation to methylation stress and genetic modulators of specific DNMT3 family members." *Nucleic Acids Research* 48, 4081-99 (2020).

[5] **Jin H**, Finnegan AI, Song JS. "A unified computational framework for modeling genome-wide nucleosome landscape." *Physical Biology* 15, 066011 (2018).

[4] Ye J*, **Jin H***, Pankov A, Song JS§, Blelloch R§. "NF45 and NF90/NF110 coordinately regulate ESC pluripotency and differentiation." *RNA* 23, 1270-84 (2017).

[3] Frampton MK, McLaughlin N, **Jin H**, Zieve RJ. "Manganin foil sensor for small uniaxial stress." *Review of Scientific Instruments* 88, 046106 (2017).

[2] Bulut-Karslioglu A, Biechele S, **Jin H**, Macrae TA, Hejna M, Gertsenstein M, Song JS, Ramalho-Santos M. "Inhibition of mTOR induces a paused pluripotent state." *Nature* 540, 119-23 (2016). *I led the bioinformatics analysis in this project.*

[1] **Jin H**, Rube HT, Song JS. "Categorical spectral analysis of periodicity in nucleosomal DNA." *Nucleic Acids Research* 44, 2047-57 (2016).

Talks and Presentations

06/2022 Gordon Research Conference on Mutagenesis, Newry, ME
Poster: *Accurate and sensitive mutational signature analysis with MuSiCal*

06/2022 Chinese Genomics Meet-up, online
Talk: *MuSiCal – Mutational Signature Calculator*

03/2022 Cancer Research UK (CRUK) Cancer Grand Challenges Scientific Forum, online
Poster: *Accurate and sensitive mutational signature analysis with MuSiCal*

06/2017 Annual Meeting of the International Physics of Living Systems (iPoLS) Network, Paris, France
Poster: *Examination of reversal asymmetry in the sequence preference of histone-DNA interaction*

05/2016 Gordon Conference on Chromatin Structure and Function, Les Diablerets, Switzerland
Poster: *Categorical spectral analysis of periodicity in nucleosomal DNA and reversal asymmetry in the sequence preference of histone-DNA interaction*

04/2016 Institute for Genomic Biology (IGB) Fellows Symposium, Urbana, IL
Poster: *Categorical spectral analysis of periodicity in nucleosomal DNA*

05/2015 Center for the Physics of Living Cells (CPLC) Student/Postdoc Biannual Symposium, Urbana, IL
Talk: *Spectral analysis of nucleosome positioning sequences in yeast*

Student Mentoring

2024–present Jiazheng Miao, Master's student in Biomedical Informatics

2023–present Beverly Fu, undergraduate student, 2024 Hoopes Prize winner

2022–present Benedikt Geiger, Master's Student in Biomedical Informatics (2022–2023), Associate Computational Biologist (2023-present)

Summer 2020 Daniel Ben-Isvy, summer intern