MICHELLE MIN RUI LI

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EDUCATION

Harvard University *Expected 06/2024*
Ph.D. Candidate in Biomedical Informatics
Dissertation: Contextualized Geometric Deep Learning for Precision Medicine
Advisor: Prof. Marinka Zitnik
Notable Awards: NSF Graduate Research Fellow, Albert J. Ryan Fellow, Weintraub Awardee

Stanford University *06/2019*
B.S. Mathematical and Computational Science with Departmental Honors
Specialization: Biology track electives; computational genomics honors concentration

ACADEMIC & PROFESSIONAL EXPERIENCE

Harvard Medical School
Marinka Zitnik Lab & Isaac Kohane Lab - Graduate Student Researcher   2019 - Present

Microsoft Research
Health Futures - PhD Research Intern   Summer 2022

Genentech
Pharmaceutical Technical Operations - Protein Analytical Chemistry Intern   Summer 2019

Stanford School of Medicine
Ami Bhatt Lab - Research Assistant   2017 - 2019

Stanford School of Medicine
Samuel Yang Lab - Research Assistant   2016 - 2019

Stanford Department of Biology
Tadashi Fukami Lab - Research Assistant   Summer 2016

Hunter College & Weill Cornell Medicine
Konstantinos Krampis Lab - Research Assistant   2014 - 2015

PUBLICATIONS

Preprints & In Review

· Emily Alsentzer*, **Michelle M. Li***, Shilpa N. Kobren, Undiagnosed Diseases Network, Isaac S. Kohane, Marinka Zitnik. *Deep learning for diagnosing patients with rare genetic diseases.* medRxiv (2022).[‡§]

· Marinka Zitnik*, **Michelle M. Li***, Aydin Wells*, [33 authors], Tijana Milenković. *Current and Future Directions in Network Biology.* arXiv (2023).

· Steven B. Cogill, Marjan M. Hashemi, Xi Yang, Nadya Andini, **Michelle M. Li**, Jason Fu, Nathan Saul, Samuel Yang. *Predicting high-resolution melt curves from sequence data using generative adversarial networks.*

Peer-Reviewed Journal Articles

· **Michelle M. Li**, Yepeng Huang, Marissa Sumathipala, Man Qing Liang, Alberto Valdeolivas, Ashwin Ananthakrishnan, Katherine Liao, Daniel Marbach, Marinka Zitnik. *Contextualized protein representations using deep learning on protein networks and single cell data.* Nature Methods *(in press)* (2024).[¶]

[‡]Awarded travel support to present at SAIL 2023
[§]Selected for long talk at TransMed in ISMB/ECCB 2023; Best Oral Presentation Award
[*]Equal contribution
[¶]Selected for poster presentation at MLCSB in ISMB/ECCB 2023

- Ruth Johnson, **<u>Michelle M. Li</u>***, Ayush Noori*, Owen Queen*, Marinka Zitnik. *Graph AI in Medicine.* Annual Review of Biomedical Data Science *(in press)* (2024).
- Emily Alsentzer*, Samuel Finlayson*, **<u>Michelle M. Li</u>**, Undiagnosed Diseases Network, Shilpa Kobren, Isaac Kohane. *Simulation of undiagnosed patients with novel genetic conditions.* Nature Communications (2023).
- Ayush Noori, **<u>Michelle M. Li</u>***, Amelia Tan*, Marinka Zitnik. *Metapaths: similarity search in heterogeneous knowledge graphs via meta-paths.* Bioinformatics (2023).
- **<u>Michelle M. Li</u>**, Kexin Huang, Marinka Zitnik. *Graph Representation Learning in Biomedicine and Healthcare.* Nature Biomedical Engineering (2022).
- Christopher Severyn, Benjamin Siranosian, Sandra Kong, Angel Moreno, **<u>Michelle M. Li</u>**, [14 authors], Ami S. Bhatt, Jennifer S. Whangbo. *Microbiota dynamics in a randomized trial of gut decontamination during allogeneic hematopoietic cell transplantation.* JCI Insight (2022).
- Xi Yang, Marjan M. Hashemi, Nadya Andini, **<u>Michelle M. Li</u>**, Shuzhen Kuang, Karen C. Carroll, Tza-Huei Wang, Samuel Yang. *RNA markers for ultra-rapid molecular antimicrobial susceptibility testing in fluoroquinolone-treated Klebsiella pneumoniae.* Journal of Antimicrobial Chemotherapy (2020).
- Christopher Severyn, Wendy London, Paige Kao, Sophie Silverstein, **<u>Michelle M. Li</u>**, [3 authors], Ami S. Bhatt, Jennifer S. Whangbo. *Longitudinal Changes in the Intestinal Microbiome Composition Following Gut Decontamination in Pediatric Allogeneic Hematopoietic Stem Cell Transplant Patients: A Pilot Study.* Blood (2019).
- Matthew G. Durrant, **<u>Michelle M. Li</u>**, Benjamin A. Siranosian, Stephen B. Montgomery, Ami S. Bhatt. *A Bioinformatic Analysis of Integrative Mobile Genetic Elements Highlights Their Role in Bacterial Adaptation.* Cell Host & Microbe (2019).

Peer-Reviewed Conference Proceedings & Workshop Papers

- Anna L. Trella, Peniel N. Argaw*, **<u>Michelle M. Li</u>***, James A. Hay. *Discrepancies in Epidemiological Modeling of Aggregated Heterogeneous Data.* International Joint Conference on Artificial Intelligence (IJCAI) Workshop on AI for Social Good (2021).[†]
- **<u>Michelle M. Li</u>**, Marinka Zitnik. *Deep Contextual Learners for Protein Networks.* International Conference on Machine Learning (ICML) Workshop on Computational Biology (2021).[†§]
- Emily Alsentzer*, Samuel Finlayson*, **<u>Michelle M. Li</u>**, Marinka Zitnik. *Subgraph Neural Networks.* NeurIPS (2020).

HONORS & AWARDS

Harvard University

- Harold M. Weintraub Graduate Student Award, 2024.[§§]
- Albert J. Ryan Fellowship, 2023.[**]
- National Science Foundation (NSF) Graduate Research Fellowship, 2021.[††]
- Sigma Xi, The Scientific Research Honor Society, Associate Membership Nomination, 2021.
- CMIT-HST Clinical Study Award, 2019.
- NHGRI T32 Training Grant in the Bioinformatics and Integrative Genomics Program, 2019 - 2021.
- Graduate School of Arts and Sciences Prize Fellowship, 2019.

Stanford University

- Barry M. Goldwater Scholarship Honorable Mention, 2018.
- The Jane McConnell and T. J. Heyman Undergraduate Scholarship Fund, Fall 2018 - Spring 2019.
- The Richard Beleson Scholarship Fund in Honor of Professor Allan Campbell and Doctor Alice del Campillo Campbell, Fall 2018 - Spring 2019.

[†]Selected for spotlight presentation

[§]Best Poster Award

[§§]12 awardees selected from nomination; one nominee per department or program

[**]15 PhD candidates selected across Harvard Medical School (5), Dartmouth University (6) and University of Cincinnati (4)

[††]Approximately 16% acceptance rate

- Gabriel, William & Antoinette Scholarship, Fall 2017 - Spring 2018.
- The Marcia Cass and Richard I. Stewart Scholarship Fund, Fall 2016 - Spring 2017.
- Undergraduate Advising and Research Major Grant, Summer 2017, Summer 2018.
- Biology Summer Undergraduate Research Program, Summer 2016.

TEACHING EXPERIENCE

Alexander Twilight Academy

- Lead Teacher, Foundations of Coding Through Graphics, Academic Years 2020 - 2024.
- Lead Teacher, Game Development Incubator, Academic Year 2020 - 2021, Summer 2021.
- Lead Teacher, Coding Through Creative Expression, Summer 2020.
- Lead Teacher, Introduction to Probability, Academic Year 2019 - 2020.

Harvard Medical School

- Teaching Fellow, BMI 718, Reading, Writing, and Evaluating Scientific Literature, Spring 2024.
- Teaching Fellow, Python Bootcamp for Biomedical Informatics Master's Program, 01/2024.
- Facilitator, Bioinformatics Workshop at the UMBC Meyerhoff Scholars Program, 10/2023.
- Teaching Fellow, BMI 717, Conduct and Communication of Science, Fall 2023.
- Teaching Fellow, CELEHS Data Science Summer Program, 07/2023, 07/2024.
- Guest Lecturer, BMI 702, Foundations in Biomedical Informatics II, Spring 2023.
- Tutor, Department of Biomedical Informatics, Academic Years 2021 - 2023.
- Teaching Fellow, BMIF 201, Concepts in Genome Analysis, Summer 2020, Fall 2020.

Conferences, Workshops, & Non-Profit Organizations

- Tutorial Instructor, Towards Precision Medicine with Graph Representation Learning at the 30th Conference on Intelligent Systems for Molecular Biology (ISMB), July 2022.[§]
- Instructor, Workshop in Computational Biology with Girls Teaching Girls to Code, Winter 2017.
- Instructor, Workshop in Artificial Intelligence with Girls Teaching Girls to Code, Winter 2015.
- Peer Tutor, After-school Mandarin with the TEAK Fellowship, Fall 2014 - Summer 2015.

Stanford University

- Section Leader, CS 106A, Code in Place, Spring 2020, Spring 2021.
- Grader, Math 51, Linear Algebra and Differential Calculus of Several Variables, Fall 2017.
- Instructor, Music 4SI, Interactive Introduction to North American Taiko, Winter 2015, Winter 2018.

SERVICE & LEADERSHIP

Research & Academic Advising

- *Undergraduate Research Mentees:* Caeden Kim (Palos Verdes High School, 2022-2023), Ayush Noori (Harvard College, Undergrad, 2021-), Marissa Sumathipala (Harvard College, Undergrad, 2021-2022), Lydia Fozo (Johns Hopkins University, Undergrad, 2021-2022)
- *Graduate Research Mentees:* Marie Zhang (Harvard Medical School, Master, 2022-2023), Yepeng Huang (Harvard T.H. Chan School of Public Health, Master, 2022-2023)
- Advisor, Board of First-Year Advisors (BFA), 08/2022 - Present.
- Board Member, SRMPmachine, American Museum of Natural History, 07/2021 - Present.

Workshops & Symposiums

- Organizer, *NeurIPS* Workshop: New Frontiers of AI for Drug Discovery and Development, 12/2023.

[§]Most highly attended tutorial

- Participant, Dagstuhl Seminar 23491: Scalable Graph Mining and Learning, 12/2023.
- Young Researcher (SAP Grant recipient[‡‡]), 10th Heidelberg Laureate Forum, 9/2023.
- Participant, College of Engineering Future Faculty Workshop at the University of Notre Dame, 5/2023.
- Organizer, Symposium on Artificial Intelligence for Learning Health Systems, 2022 - Present.
- Organizer, Learning on Graphs (LoG) Conference, 2022 - Present.
- Organizer, London Geometry and Machine Learning (LOGML) Summer School, 2022 - Present.
- Participant, Workshop on Future Directions in Network Biology, 6/2022.
- Lead Organizer, Transforming Simple Musings into Well-Defined Research Questions, 2021.
- Public Relations Co-chair, NSF National Symposium on Drug Repurposing for Future Pandemics, 2020.
- Student Volunteer, 2020 Programming Language Design and Implementation Conference, 06/2020.

Invited Talks, Seminars, & Panels
- Speaker, Harold M. Weintraub Symposium, 5/2024.
- Speaker, Chan Zuckerberg Initiative AI in Single-Cell Biology Workshop, 03/2024.
- Speaker, Machine Learning to Accelerate Biology (MLAB) Journal Club, 1/2024.
- Speaker, ISCBacademy COSI Webinar Series (Hosted by NetBio), 12/2023.
- Speaker, Department of Biomedical Informatics Science Day at Harvard Medical School, 09/2023.
- Speaker, Translational Medical Informatics at ISMB/ECCB, 07/2023.
- Poster presenter, Machine Learning in Computational and Systems Biology at ISMB/ECCB, 07/2023.
- Speaker, Center for Computational Biomedicine (CCB) Seminar Series, 05/2023.
- Speaker, 18th Annual Harold B. Amos Symposium of Ryan Fellows, 5/2023.
- Poster presenter (travel award), Symposium on Artificial Intelligence for Learning Health Systems, 5/2023.
- Speaker, NASA Horizons in Biosciences and Informatics Seminar Series, 03/2023.
- Speaker, Department of Biomedical Informatics Science Day at Harvard Medical School, 09/2022.
- Speaker, Real World Evidence (RWE) Journal Club at Microsoft Research, 8/2022.
- Speaker, Women in Data Science (WiDS Cambridge), 3/2022.
- Speaker, Scalable Algorithms for Semi-supervised and Unsupervised Learning Workshop at Google, 10/2021.
- Speaker, Summer Institute in Biomedical Informatics at Harvard Medical School, 07/2021.
- Speaker, Models, Inference & Algorithms Seminar at the Broad Institute, 05/2021.
- Speaker, 11th Annual Graph Exploitation Symposium at the MIT Lincoln Laboratory, 05/2021.
- Poster presenter, National Human Genome Research Institute (NHGRI) Annual Meeting, 03/2020, 04/2021.

STEM Outreach
- Founder & Director, Reroot STEM, 12/2023 - Present.
- Mentor, Harvard-AEMES (Smith College) Mentorship Program, 10/2022 - Present.
- Panelist, Careers in Science (hosted by SRMP) at the American Museum of Natural History, 09/2022.
- Representative, Annual Biomedical Research Conference for Minority Students (ABRCMS), 11/2021.
- Panelist, My Journey into Geometric ML at London Geometry and Machine Learning Summer School, 07/2021.
- Panelist, AI Research Panel at Rewriting the Code: Tech Tuesday, 03/2021.
- Mentor Program Lead, MITxHarvard Women in Artificial Intelligence, 09/2020 - 05/2021.
- Panelist, Graduate School Panel at the TEAK Fellowship, 08/2020.
- Executive Board Member, Harvard Graduate Women in Science and Engineering (HGWISE), 07/2020 - 05/2022.
- Co-Founder, Director, and Mentor, HGWISE: Mentoring Girls in India (ORIGIN), 07/2020 - 05/2022.
- Mentor, Women in STEM Mentoring Program at Harvard College, 09/2019 - Present.

Journal Review & Editorial Boards
- Program Committee Chair: NeurIPS AI4D3 (2023)

[‡‡]Awarded to 20 Young Researchers participating in the 10th Heidelberg Laureate Forum; sponsored by SAP SE

- Workshop Proposal Reviewer: ICML (2024)
- Paper Reviewer: AAAI (2024), ICML SPIGM (2023), IEEE ICHI (2023), ISMB (2021-2024), AI4Science (NeurIPS 2021, ICML 2022), ML4Health Symposium (2021-2024), SIGKDD (2021), NeurIPS (2021), and *Bioinformatics*.
- Member, National Human Genome Research Institute (NHGRI) Editorial Board, 04/2020 - 05/2021.
- Copy Editor and Reviewer, Journal of Emerging Investigators, 09/2019 - 05/2022.