CURRICULUM VITAE

Huangqingbo (Paul) Sun
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EDUCATION

Huazhong University of Science and Technology, Wuhan, China, B.S., 2015, Opto-electronics.
Carnegie Mellon University, Pittsburgh, PA, M.S., 2021, Automated Science.
Carnegie Mellon University, Pittsburgh, PA, Ph.D., 2024, Computational Biology (Dr. Robert F. Murphy), Minor in Machine Learning.

PROFESSIONAL EXPERIENCE

Postdoctoral Scholar, Department of Bioengineering, Stanford University, CA, 2024- (hosted by Dr. Emma Lundberg).

PUBLICATIONS

Preprints

1. Stemm-Wolf, A.J., Soh, A.W., Mitchell, L.E., Sun, H., Collet, E., Dholakia, G.L., Raju, V., Hesselberth, J.R., Taliaferro, J.M., Murphy, R.F. and Heasley, L.R., 2025. Big1 is a cell cycle regulator linking cell size to basal body number. *bioRxiv*.

Journal and full conference papers

1. Hansen, J.N., Sun, H., Kahnert, K., Westenius, E., Johannesson, A., Villegas, C., Le, T., Tzavlaki, K., Winsnes, C., Pohjanen, E. and Mäkiniemi, A., 2025. Intrinsic heterogeneity of primary cilia revealed through spatial proteomics. *Cell*, 188(24), pp.6804-6824.
2. Sun, H., Yu, S., Casals, A.M., Bäckström, A., Lu, Y., Lindskog, C., Ruffalo, M., Lundberg, E. and Murphy, R.F., 2025. Flexible and robust cell type annotation for highly multiplexed tissue images. *Cell Systems*, 16(9), p.101374.
3. Sun, H., Li, J. and Murphy, R.F., 2024. Expanding the coverage of spatial proteomics: a machine learning approach. Bioinformatics, 40(2), p.btae062.
4. Sun, H., Soh, A.W., Mitchell, L.E., Pearson, C.G. and Murphy, R.F., 2023. Basal body organization and cell geometry during the cell cycle in Tetrahymena thermophila. Molecular Biology of the Cell, 34(6), p.ar53.
5. Sun, H., Fu, X., Abraham, S., Jin, S. and Murphy, R.F., 2022. Improving and evaluating deep learning models of cellular organization. *Bioinformatics*, *38*(23), pp.5299-5306.
6. Sun, H. and Murphy, R.F., 2021. Evaluation of categorical matrix completion algorithms: toward improved active learning for drug discovery. *Bioinformatics*, *37*(20), pp.3538-3545.
7. Sun, H., Zhou, W., Zhang, Z. and Wan, Z., 2018. A MEMS variable optical attenuator with ultra-low wavelength-dependent loss and polarization-dependent loss. *Micromachines*, *9*(12), p.632.

Short conference and workshop papers

1. Sun, H. and Murphy, R.F., 2020. An improved matrix completion algorithm for categorical variables: application to active learning of drug responses. In *ICML 2020 Workshop on Real World Experiment Design and Active Learning*.

Book chapters

1. Sun, H. and Murphy, R.F., 2024. Learning Morphological, Spatial, and Dynamic Models of Cellular Components. In *Imaging Cell Signaling* (pp. 231-244). New York, NY: Springer US.

PRESENTATIONS

1. *In silico* labeling of multiplexed imaging. *Spatial Omics and AI: Bridging Discovery and Translational Medicine*, Mar 2025 (Lisbon).
2. Common cell type annotation in highly multiplexed tissue imaging atlas. *Spatial Biology Summit*, Sep 2024 (Stanford).
3. Data-driven Optimization of Biomarker panels in Highly Multiplexed Imaging. *The QBI Multiplex Image Analysis 2023 workshop*, Oct 2023 (San Diego).
4. CellOrganizer: Learning Morphological, Spatial, and Dynamic Models for Cellular and Subcellular Component. *BIRS Workshop on Mathematical Methods for Exploring and Analyzing Morphological Shapes across Biological Scales*, Sep 2023 (Banff).
5. Active Machine Learning for Biological Discovery. *European Society of Medicine General Assembly*, July 2022 (virtual).

HONORS

Merit Fellowship, Computational Biology Department, Carnegie Mellon University, 2019-2021.

MENTORING EXPERIENCES

Jiayi Li (MS, 2022 Spring - 2023 Fall)
Shiqiu Yu (MS 2023 Summer – 2024 Summer)
CMU Undergraduate AI Mentoring Program (2023 Fall, 2024 Spring)

COURSES AND TUTORIALS

02-680 Essential Mathematics and Statistics for Scientists: 2021 Fall, Carnegie Mellon University (TA).
02-750 Automation of Scientific Research: 2022 Spring, Carnegie Mellon University (TA).

PROFESSIONAL SERVICE

Reviewing

Bioinformatics, Cell Reports Methods, ICLR 2024, 2025 Workshops, Cell systems.