ASHLEY TSANG

atsang5@jhu.edu • (650) 430-5160

EDUCATION

Johns Hopkins University, Baltimore, MD 2022–Present
– M.S.E. in Biomedical Engineering

Johns Hopkins University, Baltimore, MD 2018–2022
– B.S. in Biomedical Engineering and Computer Science

PUBLICATIONS

[1] Biopsy Needle Accessory
Robert Liddell, Deborah Weidman, **Ashley Tsang**, Gohta Aihara, Tatiana Pereira, Bibhav Poudel, Jacob Desman, Katherine Kovrizhkin, Sean Darcy, Jinghua Zhang, Shababa Matin
PCT US2022/077146, filed Sept. 29, 2022. Patent Pending.

[2] Inferring cellular and molecular processes in single-cell data with non-negative matrix factorization using Python, R, and GenePattern Notebook implementations of CoGAPS
Jeanette Anna Irene Johnson*, **Ashley Tsang***, Jacob T Mitchell, Emily F Davis-Marcisak, Thomas Sherman, Ted Liefeld, Melanie Loth, Loyal Goff, Jacquelyn Zimmerman, Ben Kinny-Köster, Elizabeth Jaffee, Pablo Tamayo, Jill Mesirov, Michael Reich, Elana J Fertig, Genevieve L Stein-O'Brien
Under review at Nature Protocols, 2022
(*equal contribution)

[3] Deep Learning Model for Static Ocular Torsion Detection Using Synthetically Generated Fundus Images
Chen Wang, Yunong Bai, **Ashley Tsang**, Yuhan Bian, Yifan Gou, Yan X. Lin, Matthew Zhao, Tony Y. Wei, Jacob M. Desman, Casey Overby Taylor, Joseph L. Greenstein, Jorge Otero-Millan, Tin Yan Alvin Liu, Amir Kheradmand, David S. Zee, Kemar E. Green
Under review at Translational Vision Science and Technology, 2022

[4] Adequacy of samples obtained via percutaneous core-needle rebiopsy for EGFR T790M molecular analysis in patients with non-small cell lung cancer following acquired resistance to first-line therapy: A systematic review and meta-analysis
Bibhav Poudel, Jacob Desman, Gohta Aihara, Deborah I Weidman, **Ashley Tsang**, Katherine Kovrizhkin, Tatiana Pereira, Siddharth Arun, Tejus Pradeep, Shababa Matin, Robert P Liddell
Cancer Treatment and Research Communications, 2021

EXPERIENCES

PneuTech, Co-Founder and Lead 2019–Present
– Collaborate with Johns Hopkins Hospital clinicians and JHU engineering students to develop novel medical device which improves safety and efficacy of lung biopsy procedures
– Raised over $46,000 in non-dilutive funding; Rice Business Plan Competition Semi-Finalists (2022), VentureWell E-Team Cohort (2022), 1st Place CMU Venture Challenge (2021), 2nd Place JHU Business Plan Competition (2021), Runner-Up JHU FastForward Fuel Demo Day (2021)

Wirtz/Wu Lab @ JHU, Research Assistant 2022–Present
– Develop deep learning algorithm and workflow for instance segmentation of immune cells and tissue subtypes in histopathology slides

Stein-O'Brien Lab @ JHU, Research Assistant 2022–Present

- Developing analysis using projectR, for transfer learning on single-cell datasets, to transfer patterns learned in mice to humans for breast cancer analysis

Fertig Lab @ JHU, Research Assistant 2021–Present

- Created PyCoGAPS, a Python implementation of CoGAPS algorithm for gene set analysis
- Developed user-friendly workflows and usage with Docker and GenePattern, and reduced runtime by 2.8x

Department of Applied Mathematics and Statistics @ JHU, Teaching Assistant Fall 2020

- Held teaching assistant responsibilities, including leading weekly discussion sections, for EN.553.171 Discrete Mathematics

Delineo Disease Modeling, Software Development Co-Lead 2020

- Led team of 17 JHU students to develop localized prediction model for the spread of COVID-19
- Leveraged machine learning methods to predict disease spread using large geolocation datasets

Malone Center for Engineering in Healthcare @ JHU, Research Assistant 2019-2020

- Created user-friendly script for annotating pupil segmentations across video frames of cataract surgical procedures
- Implemented traditional computer vision methods and explored deep learning for segmentation

SKILLS

Programming Languages

- Python, Java, C/C++, MATLAB, R

Machine Learning Frameworks

- PyTorch, NumPy