ASHLEY TSANG

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EDUCATION

University of Michigan, Ann Arbor, MI — 2023–Present
- PhD in Bioinformatics

Johns Hopkins University, Baltimore, MD — 2022–2023
- MSE in Biomedical Engineering

Johns Hopkins University, Baltimore, MD — 2018–2022
- BS in Biomedical Engineering and Computer Science

PUBLICATIONS

[1] Assessing the tumor immune landscape across multiple spatial scales to differentiate immunotherapy response in metastatic non-small cell lung cancer
Ashley P Tsang*, Santhoshi N Krishnan*, Joel N Eliason*, Jake J McGue, Angel Qin, Timothy L Frankel, Arvind Rao
(*equal contribution) *Under review at Laboratory Investigation, 2024*

[2] A phase 2 multicenter trial of rucaparib and nivolumab as maintenance therapy in patients with advanced biliary tract cancer: BilT-02
Arathi Mohan, Kent A Griffith, Laura W Goff, Oxana Crysler, Thomas Enzler, Dana B Cardin, Valerie Gunchick, **Ashley P Tsang**, Allison Young, Alberto C Olivei, Rahul Mannan, Arvind Rao, Timothy L Frankel, Chandan Kumar-Sinha, Mark M Zalupski, Vaibhav Sahai
In preparation, 2024

[3] Inferring cellular and molecular processes in single-cell data with non-negative matrix factorization using Python, R, and GenePattern Notebook implementations of CoGAPS
Jeanette AI Johnson*, **Ashley P Tsang***, Jacob T Mitchell, David L Zhou, Julia Bowden, Emily Davis-Marcisak, Thomas Sherman, Ted Liefeld, Melanie Loth, Loyal A Goff, Jacquelyn W Zimmerman, Ben Kinny-Köster, Elizabeth M Jaffee, Pablo Tamayo, Jill P Mesirov, Michael Reich, Elana J Fertig, Genevieve L Stein-O'Brien
(*equal contribution) *Nature Protocols, 2023.*

[4] 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.

[5] 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.

[6] 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
Translational Vision Science and Technology, 2022.

RESEARCH EXPERIENCES

Systems Imaging & Bioinformatics Lab @ UM, Graduate Researcher 2022–2023

- Supervised by Dr. Arvind Rao to develop multi-modal and spatial informatics methods for understanding the tumor microenvironment.
- Leveraging multiplex immunoflouorescence, spatial transcriptomics, and single-cell data to uncover drivers of response to cancer therapies.

Wirtz/Wu Lab @ JHU, Graduate Researcher 2022–2023

- Supervised by Dr. Denis Wirtz and Dr. Pei-Hsun Wu to develop framework for histopathology analysis.
- Proposed a two-stage learning architecture for nuclei instance segmentation from sparsely annotated nuclei instances, reducing labeling costs and improving generalization.

Fertig Lab & Stein-O'Brien Lab @ JHU, Undergraduate/Graduate Research Assistant 2021–2023

- Supervised by Dr. Elana Fertig and Dr. Genevieve Stein-O'Brien to develop PyCoGAPS, a Python package of CoGAPS for non-negative matrix factorization of single-cell datasets.
- Created frameworks with GenePattern Notebook and Docker, and implemented additional analysis tools for simple and effective usage by biologists and scientists.

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

- Supervised by Dr. Anand Malpani to develop interface for annotating frames of cataract surgery procedures.
- Implemented traditional computer vision methods for segmentation of pupil across frames and curated dataset for ML model development.

PROFESSIONAL EXPERIENCES

PneuTech, Co-Founder 2019–Present

- Supervised by Dr. Robert Liddell at Johns Hopkins Medicine to lead team to develop novel medical device for lung biopsies (patented in the US and patent-pending internationally).
- Led team to finals in five startup competitions, presented at one medical device conference, completed three accelerator programs, and secured over $65K in non-dilutive funding.

Delineo Disease Modeling, Research Lead 2020

- Supervised by Dr. Anton Dahbura to lead research software development team of engineering students to develop a personalized, predictive model for the spread of COVID-19.

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

- Planned and led weekly discussion sections, held office hours, and graded assignments and exams.

AWARDS & HONORS

- UM Biomedical Informatics and Data Science Fellowship (BIDS-TP) 2023 & 2024
- JHU Biomedical Engineering & Computer Science Departmental Honors 2022
- VentureWell E-Team Entrepreneurship Award 2022
- Innovators of Progress Scholarship Award 2021

SKILLS

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