

Akhil V. Kondepudi

1301 Catherine St, Ann Arbor, MI 48109

Email: akhilk@umich.edu

Website: avkondepudi.me

EDUCATION

University of Michigan | Ann Arbor, MI 2023 — now
MD/Ph.D., Computational Medicine and Bioinformatics
Medical Scientist Training Program

University of Michigan | Ann Arbor, MI 2022
B.S. *with High Honors*, Neuroscience
Magna Cum Laude, Minors in Computer Science and Biophysics

HONORS, AWARDS, AND FELLOWSHIPS

Best Neurosurgery Abstract Award 2023
Society for Neuro-Oncology | Annual Scientific Meeting

Director's Exceptional Achievement Award 2022
University of Michigan | Undergraduate Program in Neuroscience

Undergraduate Entrepreneur of the Year 2022
University of Michigan | Ross School of Business

Phi Beta Kappa 2022
University of Michigan

Multiple Startup Grants, AI-assisted supplemental speech therapy (\$40000) 2022
University of Michigan

2nd Place, Michigan Business Challenge Impact Track 2022
University of Michigan | Ross School of Business

Honors Summer Research Fellowship 2021
University of Michigan | College of LS&A

UM-SMART Undergraduate Research Fellowship 2020
University of Michigan Medical School

Alumni First Year Achievement Award 2020
University of Michigan | Department of Chemistry

1st Place, National Brain Bee 2018
Baltimore, USA

PUBLICATIONS

Journal Articles

Lee SJ, Gasche M, Burrow C, [Kondepudi A](#), Zhang X, Wang MM. **Preferential rabbit antibody responses to C-termini of NOTCH3 peptide immunogens.** *Nature Scientific Reports* 13(1), 2023. PM37280231

Lee SJ, [Kondepudi A](#), Young KZ, Zhang X, Cartee NMP, Chen J, Jang KY, Gang X, Borjigin J, Wang MM. **Concentration of non-myocyte proteins in arterial media of cerebral autosomal dominant arteriopathy with subcortical infarcts and leukoencephalopathy.** *PLOS ONE* 18(2), 2023. PM36753487

Hollon T, Jiang C, Chowdury A, Nasir-Moin M, [Kondepudi A](#), Abedi A, Adapa A, Al-Holou W, Heth J, Sagher O, Lowenstein P, Castro M, Wadiura L, Widhalm G, Neuschmelting V, Reinecke D, von Spreckelsen N, Berger M, Hervey-Jumper S, Golfinos J, Snuderl M, Camelo-Piragua S, Freudiger C, Lee H, Orringer D. **Artificial-intelligence-based molecular classification of diffuse gliomas using rapid, label-free optical imaging.** *Nature Medicine* 29(4), 2023. PM36959422

Noori A*, Madgamo C*, Liu X, Tyagi T, Li Z, [Kondepudi A](#), Alabsi H, Rudmann EA, Wilcox DR, Brenner LN, Robbins GK, Moura LMVR, Zafar S, Benson NM, Hsu J, Dickson JR, Serrano-Pozo A, Hyman BT, Blacker D, Westover MB, Mukerji SS, Das S. **Development and Evaluation of a Natural Language Processing Annotation Tool (NAT) to Facilitate Phenotyping of Cognitive Status in Electronic Health Records: Diagnostic Study.** *Journal of Medical Internet Research* 24(8), 2022. PM36040790

Jiang C, Bhattacharya A, Linzey JR, Joshi R, Cha SJ, Srinivasan S, Alber D, [Kondepudi A](#), Urias E, Pandian B, Al-Holou WN, Sullivan SE, Thompson BG, Heth JA, Freudiger CW, Khalsa SSS, Pacione DR, Golfinos JG, Camelo-Piragua S, Orringer DA, Lee H, Hollon TC. **Rapid Automated Analysis of Skull Base Tumor Specimens Using Intraoperative Optical Imaging and Artificial Intelligence.** *Neurosurgery* 90(6), 2022, COVER. PM35343469

Conference Proceedings

Jiang C*, Hou X*, [Kondepudi A](#), Chowdury A, Freudiger CW, Orringer DA, Lee H, Hollon TC. **Hierarchical discriminative learning improves visual representations of biomedical microscopy.** *The IEEE / CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2023, HIGHLIGHT. PM37654477

Jiang C*, Chowdury A*, Hou X*, [Kondepudi A](#), Freudiger C, Camelo-Piragua S, Orringer DA, Lee H, Hollon T. **OpenSRH: optimizing brain tumor surgery using intraoperative stimulated Raman histology.** *Conference on Neural Information Processing Systems (NeurIPS) Datasets and Benchmarks Track*, 2022. PM37082565

Preprints

Lyu Y*, Jik Cha S*, Jiang C, Chowdury A, Hou X, Harake E, [Kondepudi A](#), Freudiger C, Lee H, Hollon T. **Step-Calibrated Diffusion for Biomedical Optical Image Restoration.** *In review*, 2024.

[Kondepudi A](#), Pekmezci M, Hou X, Scotford K, Jiang C, Rao A, Harake ES, Chowdury A, Al-Holou W, Wang L, Pandey A, Lowenstein P, Gastro M, Koerner LI, Roetzer-Pejrimovsky T, Widhalm G, Camelo-Piragua S, Movahed-Ezazi M, Orringer DA, Lee H, Freudiger C, Berger M, Hervey-Jumper S, Hollon T. **Visual foundation models for fast, label-free detection of diffuse glioma infiltration.** *In review*, 2024.

Hou X*, Jiang C*, [Kondepudi A](#), Lyu Y, Chowdury A, Lee H, Hollon TC. **A self-supervised framework for learning whole-slide representations.** *In review*, 2024.

ABSTRACTS

[Kondepudi A*](#), Scotford K, Jiang C, Hou X, Pekmezci M, Freudiger C, Orringer D, Golfinos J, Wadiura L, Widhalm G, Berger M, Hervey-Jumper S, Hollon T. **Visual foundation models for rapid, label-free detection of diffuse glioma infiltration.** Winner of the 2023 Best Neurosurgery Abstract Award, Society for Neuro-Oncology Annual Meeting; November 2023; Vancouver, CA.

[Kondepudi A](#), Scotford K, Pekmezci M, Freudiger C, Berger M, Hervey-Jumper S, Hollon T*. **Fast Intraoperative Detection of Glioma Infiltration Using Label-Free Optical Microscopy and Deep Neural Networks.** American Academy of Neurological Surgery Annual Meeting; October 2023; Sea Island, GA.

Scotford K*, Berger M, Hervey-Jumper S, Pekmezci M, Hollon T, [Kondepudi A](#). **Accuracy Comparison of Glioma Infiltration Between Histological Analysis and AI Generated Tumor Burden Classifiers.** American Association of Neurological Surgeons (AANS) Annual Scientific Meeting; April 2023; Los Angeles, CA.

Hollon TC*, Golfinos JG, Orringer DA, Berger M, Hervey-Jumper S, Muraszko, Freudiger C, Heth J, Sagher O, Jiang C, Chowdury A, Nasir-Moin M, [Kondepudi A](#), Aabedi A, Adapa A, Al-Holou W, Wadiura L, Widhalm G, Neuschmelting V, Reinecke D, Camelo-Piragua S. **AI-Based Molecular Classification of Diffuse Gliomas using Rapid, Label-Free Optical Imaging.** Annual Meeting of the Congress of Neurological Surgeons; October 2022; San Francisco, CA.

[Kondepudi A*](#), Lee SJ, Young KZ, Wang MM. **Concentration of Non-Myocyte Proteins in Arterial Media of CADASIL.** Program in Biology/Undergraduate Program in Neuroscience (PiB/UPiN) Poster Session; April 2022; Ann Arbor, MI.

PROFESSIONAL EXPERIENCE

University of California San Francisco | Remote 2022 — now
Junior Scientist (Mentored by Dr. Todd Hollon and Dr. Shawn Hervey-Jumper)
• Computer vision, representation learning; applied to improve the surgical management of gliomas

Massachusetts General Hospital | Remote 2021 — 2022
Bioinformatics Intern (Mentored by Dr. Shibani Mukerji and Dr. Brandon Westover)
• Worked on clinical text de-identification to facilitate EHR data-sharing between institutions
• Developed an integrated Python workflow and GUI with Prodigy that allowed clinicians to annotate 100s of clinical notes and then immediately train and evaluate NLP algorithms

United States Government, General Services Administration | Remote 2021
Data Science Intern (Mentored by Bryan Lane)
• Selected as part of the Civic Digital Fellowship
• Helped create the AI Grand Challenge for Resilience—a data science initiative designed to understand the impact of government policy on the COVID-19 pandemic
• Developed pipeline to train large language models on policy text

TEACHING

HONORS 135 — Applied Computer Vision in Medicine

Fall 2021

Undergraduate Instructor | University of Michigan

- Led weekly classes to introduce first-year students to advancements in computational medicine
- Created coding tutorials on how to train AI models with open-source biomedical datasets

OUTREACH

optiMize | Mentor

2020 — now

- Help social impact startups with customer discovery, pitching, and prototyping

Detroit Education Society | Tutor

2019 — 2022

- Taught math to middle schoolers from the greater Detroit area

University of Michigan Science Olympiad | Board Member

2019 — 2022

- Oversaw an university-wide academic science competition for 120+ middle and high school teams

SKILLS

Laboratory

PCR, Cell Fractionation, Molecular Cloning, Western Blots, DNA and RNA Extraction, Staining (HE, IHC, IF), Cell Transfection

Programming

Proficient in Python, C++, R | Working Knowledge of Java, React, Rust

Libraries

Pandas, NumPy, OpenCV, Scikit-learn, TensorFlow, PyTorch, JAX, tidyverse

Tools

Git, Docker, Slurm, ImageJ, AWS EC2, GCP