Jason Ken Adhinarta

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Education

Boston College — Chestnut Hill, MA
B.S. in Computer Science and Mathematics; ***GPA: 3.98/4.00*** — *Aug 2021 – May 2025*

Research Experience

Boston College Computer Vision Lab — Chestnut Hill, MA
Research Assistant (advised by Prof. Donglai Wei) — *Sep 2021 – Present*

- Designed methods to extract anatomical structures from vessels and dendrites imaged using electron microscopy
- Maintained evaluation containers for SNEMI3D, RNR-EXM, and AxonEM benchmarks on the Grand Challenge platform
- Orchestrated data pipelines for processing terabyte-scale datasets using Dask, SLURM, and Princeton Seung Lab's suite
- Onboarded research interns onto the Boston College Linux Cluster and PyTorch Connectomics ecosystems
- Collaborated with neuroscientists and computer vision experts at Harvard Visual Computing Group, Harvard Lichtman Lab, NYU Neuroinformatics lab, UMass Chan Yemini Lab, and Rafael Yuste's lab at Columbia

EPFL CVLab — Lausanne, Switzerland
Research Intern (advised by Dr. Jiancheng Yang and Prof. Pascal Fua) — *May 2023 – Aug 2023*

- Developed methods to generate anatomically accurate heart structures from MRI data using neural fields, part of a larger project to create realistic augmented reality cardiac intervention simulations for medical training
- Implemented methods to extract ribcages from CT scans, creating a large-scale rib segmentation benchmark

Emmerich Research Center — Jakarta, Indonesia
Research Intern (advised by Dr. Eden Steven) — *Aug 2018 – Aug 2021*

- Worked closely with food scientists, chemists, physicists, and electrical engineers on interdisciplinary problems
- Rigged optical control systems to study phosphorescence of glow-in-the-dark crystals under cryogenic temperatures
- Developed contamination detection methods to streamline synthetic leather production systems
- Computationally modeled the Ohmic resistance of hexagonal lattices analagous to twisted bilayer graphene
- Trained larvae tracking systems as part of a greater project to optimize conversion of organic waste into protein
- Crafted a computer vision system to automate palm oil fruit quality control for industry partners
- Co-designed an Arduino-based electronics programming curriculum for Sekolah Pelangi Kasih, a local high school

Publications

Jason K. Adhinarta*, Jizheng Dong*, Tianxiao He*, Junxiang Huang*, Daniel Sprague*, Jia Wan, Hyun Jee Lee, Zikai Yu, Hang Lu, Eviatar Yemini, Saul Kato, Erdem Varol, Donglai Wei. **WormND: A Benchmark for Extracting Whole-Brain Neural Dynamics of *C. elegans* at the Neuron Resolution**. Manuscript in preparation.

Jia Wan, Wanhua Li, Atmadeep Banerjee, **Jason K. Adhinarta**, Evelina Sjostedt, Jingpeng Wu, Jeff Lichtman, Hanspeter Pfister, Donglai Wei. **TriSAM: Tri-Plane SAM for zero-shot cortical blood vessel segmentation in VEM images**. Under review at IEEE Journal of Biomedical and Health Informatics. arXiv:2401.13961v3

Shixuan Gu, **Jason K. Adhinarta**, Mikhail Bessmeltsev, Jiancheng Yang, Jessica Zhang, Wenjie Yin, Daniel Berger, Jeff W. Lichtman, Hanspeter Pfister, Donglai Wei. **Frenet-Serret Frame-based Decomposition for Part Segmentation of 3D Curvilinear Structures**. Under review at IEEE Transactions on Medical Imaging. arXiv:2404.14435

Jiancheng Yang, Ekaterina Sedykh, **Jason K. Adhinarta**, Hieu Le, Pascal Fua. **Generating Anatomically Accurate Heart Structures via Neural Implicit Fields**. Medical Image Computing and Computer-Assisted Intervention 2024. doi:10.1007/978-3-031-72378-0_25

Xiaomeng Han, Xiaotang Lu, Peter H. Li, Shuohong Wang, Richard Schalek, Yaron Meirovitch, Zudi Lin, **Jason K. Adhinarta**, Daniel Berger, Yuelong Wu, Tao Fang, Elif S. Meral, Shadnan Asraf, Hidde Ploegh, Hanspeter Pfister, Donglai Wei, Viren Jain, James S. Trimmer, Jeff W. Lichtman. **Multiplexed Volumetric CLEM enabled by antibody derivatives provides new insights into the cytology of the mouse cerebellar cortex**. Nature Communications 2024. doi:10.1038/s41467-024-50411-z

Liang Jin, Shixuan Gu, Donglai Wei, **Jason K. Adhinarta**, Kaiming Kuang, Yongjie J. Zhang, Hanspeter Pfister, Bingbing Ni, Jiancheng Yang, Ming Li. **RibSeg v2: A Large-scale Benchmark for Rib Labeling and Anatomical Centerline Extraction**. IEEE Transactions on Medical Imaging 2023. doi:10.1109/TMI.2023.3313627

Jason K. Adhinarta, Eric Jobiliong, Muhandis Shiddiq, Henri P. Uranus and Eden Steven. **Light storage and thermal-assisted switching of $SrAl_2O_4$:Eu^{2+}, Dy^{3+}**. Journal of Nonlinear Optical Physics & Materials 2019. doi:10.1142/S0218863519500425

Patents

Edmund F. Anderson, Eden Steven, Ray A. O. Sinurat, **Jason K. Adhinarta**, Calvin, Alvius Tinambunan, Josavan Ezekhiel, Andrew D. Widjaja. **A Robotic Method of Monitoring, Hydrating, Training, and Treating Bacterial or Fungal Infections of New-growth Fungal Cultures to Produce Densified Sheet-like Lateral Networks of Fungal Materials**. PDKI:P00202009416. Patent pending, submitted in 2020.

Teaching Assistantship

CSCI 3397: Biomedical Image Analysis *(Prof. Donglai Wei)* Spring 2024
MATH 4480: Math and Machine Learning *(Prof. Elisenda Grigsby)* Spring 2023

Activities

Boston College Machine Intelligence Group Chestnut Hill, MA
President *Sep 2022 – Present*
- Organized weekly seminars for an undergraduate audience, hosting industry experts from Meta, Google, Red Hat
- Equipped members with concrete engineering skills, promoting collaboration with CS/math research labs on campus
- Developed workshops on landmark ML methods in collaboration with Boston College Computer Science Society

Boston College Experimental Math and Machine Learning Lab Chestnut Hill, MA
Member *Mar 2023 – Present*
- Presented on interesting theoretical and practical developments in deep learning to a mathematically inclined audience
- Engaged with faculty and graduate students to explore the intersection of mathematics and machine learning
- Received funding from a Teaching-Advising-Mentoring grant Summer 2024 to develop tutorial materials on CLI tools

SPH Lippo Village Applied Science Academy Tangerang, Indonesia
Mentor *Aug 2023 – Present*
- Remotely mentored three high school students with varying experience levels on the Python deep learning ecosystem, with an emphasis on hands-on projects such as audio-processing for mosquito species identification, keyboard keystroke sniffing attacks, and remote-controlled-car navigation using novel view synthesis

Citylife Presbyterian Church Boston, MA
Community Group Co-leader *Aug 2024 – Present*
- Facilitated weekly student-led meetings involving praise, prayer, and sermon discussions at Boston College

Brighton High School, Haley House, The City Boston, MA
Volunteer *May 2022 – May 2023*
- Summer 2022: Served as a teaching assistant at Brighton High School for math classes; aided in sorting and distribution of clothing donations at Haley House; interviewed families of COVID victims for The City, a NYC-based news organization, wrote obituaries for publication
- Fall 2022 - Spring 2023: Co-ran the Threads campaign at Boston College, organizing a clothing drive and panel discussion with activists from St. Francis House, Cradles to Crayons, and Haley House to raise awareness on clothing insecurity

Boston College Competitive Programming Team Chestnut Hill, MA
Competitor *Sep 2022 – Dec 2023*
- Represented Boston College at the 2022 and 2023 ICPC Northeast North America Regional Contests

Awards

Phi Beta Kappa Spring 2024
Nominated as a junior, based on academic engagement, intellectual curiosity, and leadership capacity

Boston College Dean's Scholar Award Spring 2024
Granted to the top 5% of the junior class based on academic performance and co-curricular leadership

Boston College Eagle Intern Fellowship Summer 2023
$4,800 stipend awarded for full-time research internship

Boston College Sophomore Scholar Award Spring 2023
Granted to the top 5% of the sophomore class based on academic excellence

Boston College Gabelli Presidential Scholarship Fall 2021
Competitive four-year full-tuition scholarship awarded to ∼15 students annually

ISMOA Best Poster Presentation Summer 2019
Awarded at the 12^{th} International Symposium on Modern Optics and its Applications