Jason Ken Adhinarta

jasonkena.github.io · jason.adhinarta@bc.edu · Chestnut Hill, MA

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 tackle multimodal problems in connectomics—blood vessel tracking, dendritic spine segmentation, and vesicle detection—by utilizing deep learning techniques (PointNet++, U-Net3D, Cellpose)
- Maintained evaluation containers for SNEMI3D, RNR-EXM, and AxonEM benchmarks on the Grand Challenge platform
- Created a Dask-powered framework to orchestrate data processing pipelines on large-scale datasets; ported 3D algorithms (3D connected components, euclidean distance transform, and TEASAR skeletonization) from the Seung Lab to be chunking-compatible
- Onboarded research interns onto the Boston College Linux Cluster and PyTorch Connectomics ecosystems

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

- Developed point-cloud/volume-based baseline methods for rib segmentation and centerline extraction
- Implemented methods for heart reconstruction on diverse multimodal datasets (CT/MRI)

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

- Researched the lifecycle of Black Soldier Flies by employing segmentation (YOLACT, Mask-RCNN) and tracking methods (Differentiable Particle Filters, Tracking-by-Animation)
- Used XGBoost-powered models to standardize palm oil fruit grading for industry partners; deployed GCP pipelines to automate annotation/training cycles
- Developed contamination detection methods to streamline synthetic leather production systems
- Rigged heat and optical control systems to study phosphorescent phenomena under cryogenic temperatures
- Co-designed an electronics programming curriculum for an highschool extracurricular program

Publications

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**. arXiv:2401.13961v3

Shixuan Gu, **Jason K. Adhinarta**, Mikhail Bessmeltsev, Jiancheng Yang, Jessica Zhang, Daniel Berger, Jeff W. Lichtman, Hanspeter Pfister, Donglai Wei. **FreSeg: Frenet-Frame-based Part Segmentation for 3D Curvilinear Structures**. arXiv:2404.14435

Jiancheng Yang, Ekaterina Sedykh, **Jason K. Adhinarta**, Hieu Le, Pascal Fua. **Generating Anatomically Accurate Heart Structures via Neural Implicit Fields**. MICCAI 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**. TMI 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+}**. JNOPM 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 [pending]

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*

- Equipped members with machine learning skills required for research/engineering, connecting them with computer science research labs on campus
- Organized biweekly workshops, introducing modern deep learning techniques (e.g., Segment Anything, contrastive learning, adversarial robustness) to students

Boston College Experimental Math and Machine Learning Lab Chestnut Hill, MA

Member *March 2023 – Present*

- Presented on interesting theoretical and practical developments in deep learning (NN-decision tree equivalence, zero-order optimization, Sharpness-Aware Minimization)
- Engaged with faculty and graduate students to explore the intersection of mathematics and machine learning (gerrymandering, symmetry in ReLU MLPs)

SPH Lippo Village Applied Science Academy Tangerang, Indonesia

Mentor *Aug 2023 – Present*

- Mentored two high school students on Python and PyTorch fundamentals, focusing on hands-on projects involving audio-processing for mosquito species identification and keyboard keystroke sniffing

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

Boston College Dean's Scholar Award Spring 2024

Boston College Sophomore Scholar Award Spring 2023

Boston College Gabelli Presidential Scholarship Fall 2021

ISMOA Best Poster Presentation Summer 2019

Awarded at the 12^{th} International Symposium on Modern Optics and its Applications

Skills

Proficient: Python, Numpy/Scipy, PyTorch, OpenCV, Dask, SLURM, Linux CLI, Arduino

Intermediate: Javascript, Docker, Flask, PostgreSQL, LabView, Igor Pro, LaTeX/TikZ

Basic: C++, Coq, Haskell, AWS/GCP

Coursework

Computer Science: Large Scale Data Processing, Computability and Computational Complexity, Algorithms, Formal Methods

Mathematics: Advanced Data Analysis, Mathematical Statistics, Probability Theory, Real Analysis, Differential Equations