Mars Huang

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EDUCATION

Stanford University *Expected December 2023*
Doctor of Philosophy in Biomedical Informatics GPA: 4.10

- *Co-advised by Drs Serena Yeung, Curtis P. Langlotz and Matthew P. Lungren*
- *Relevant Courses: Deep Learning in Genomics and Biomedicine, Representations and Algorithms for Computational Molecular Biology, Machine Learning, Translational Bioinformatics, Natural Language Processing with Deep Learning, Mining Massive Datasets, Computational Methods for Biomedical Image Analysis, Data Driven Medicine, Artificial Intelligence for Healthcare, Introduction to Statistical Inference, Deep Multi-task and Meta Learning*

University of California – San Diego *June 2017*
Bachelor of Science in Computer Science & Bioinformatics Major GPA 3.80

- *Relevant Courses: Neural Networks, Data Science in Practice, Recommender Systems & Web Mining, Probabilistic Statistics, Advanced Data Structures, Biological Databases, Big Data in Computational Biology*

WORK EXPERIENCES

Salesforce AI Research
Medical AI Research Summer Intern - Advised by Dr. Andre Esteva *June 2021 – September 2021*

- Designed and implemented a multimodal self-supervised framework for prostate cancer long-term outcome prediction

Bunkerhill Health
Machine Learning Engineer Summer Intern *June 2020 – August 2020*

- Implemented a metrics processor microservice for machine learning models deployed at different medical institutions

Chan Zuckerberg Initiative (CZI)
Computational Biology Summer Intern – Advised by Dr. Nicholas Sofroniew *July 2019 – September 2019*

- Created Segmentify, an interactive and general-purpose cell segmentation plugin for the image viewer Napari

Trials.ai
Machine Learning Engineer *June 2018 – August 2018*

- Developed Trials2Vec, a word-embedder that learns representations of semantics and structures of clinical trials data

San Diego Supercomputer Center
Research Programmer – Advised by Dr. Peter Rose *December 2016 – May 2018*

- Developed mmtf-pyspark, a python package that parallelizes analysis and mining of protein data using Apache-Spark

California Center for Algae Biotechnology
Machine Learning Researcher – Advised by Dr. Stephen Mayfield *March 2015 - December 2016*

- Utilized machine learning models to predict the transcription efficiency to help design synthetic promoters for algae

SELECTED PUBLICATIONS

Locating Semantically Consistent Crops For Self-supervised Representation Learning
***Shih-Cheng Huang**, Yuhui Zhang, Elaine Sui, Jason Fries, Curtis P. Langlotz, Serena Yeung*
Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (2023) [Under review]

BenchMD: A Benchmark for Modality-Agnostic Learning on Medical Images and Sensors

*Kathryn Wantlin, Chenwei Wu, **Shih-Cheng Huang**, Oishi Banerjee, Farrah Dadabhoy, Veeral Vipin Mehta, Ryan Wonhee Han, Fang Cao, Laura Heacock, Geoffrey H. Tison, Alex Tamkin, Pranav Rajpurkar*
Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (2023) [Under review]

Dr. ML: Diagnosing and Rectifying Vision Models Using Language
*Yuhui Zhang, Jeff Z. HaoChen, **Shih-Cheng Huang**, Kuan-Chieh Wang, James Zou, Serena Yeung*
International Conference on Learning Representations (2023) [Under review]

Self-supervised Learning for Medical Image Classification: A Systematic Review and Implementation Guidelines
Shih-Cheng Huang, *Anuj Pareek*, Matthew P. Lungren, Serena Yeung, Akshay Chaudhari*
Nature Partner Journals (NPJ) Digital Medicine (2023) [Under review]

Developing Medical Imaging Diagnostic Tools for Emerging Infectious Diseases
***Shih-Cheng Huang**, Akshay Chaudhari, Nigam Shah, Serena Yeung, Matthew P. Lungren*
Nature Communications (2022)

Adapting Pre-trained Vision Transformers from 2D to 3D through Weight Inflation Improves Medical Image Segmentation
*Yuhui Zhang**, Shih-Cheng Huang**, Zhengping Zhou, Matthew P. Lungren, Serena Yeung*
Proceedings of the 2nd Machine Learning for Health Symposium (2022)

Prostate Cancer Therapy Personalization via Multi-modal Deep Learning on Randomized Phase III Clinical Trials
*Andre Esteva , Jean Feng, Douwe van der Wal, **Shih-Cheng Huang**, Jeffry P. Simko, Sandy DeVries, Emmalyn Chen, Edward M. Schaeffer, Todd M. Morgan, Yilun Sun, Amirata Ghorbani, Nikhil Naik, Dhruv Nathawani, Richard Socher, Jeff M. Michalski, Mack Roach III, Thomas M. Pisansky, Jedidiah M. Monson, Farah Naz, James Wallace, Michelle J. Ferguson, Jean-Paul Bahary, James Zou, Matthew Lungren, Serena Yeung, Ashley E Ross, Howard M. Sandler, Phuoc T. Tran, Daniel E. Spratt, Stephanie Pugh , Felix Y. Feng, Osama Mohamad*
Nature Partner Journals (NPJ) Digital Medicine. (2022)

GLoRIA: A Multimodal Global-Local Representation Learning Framework for Label-efficient Medical Image Recognition
***Shih-Cheng Huang,** Liyue Shen, Matthew P. Lungren, Serena Yeung*
Proceedings of the IEEE/CVF International Conference on Computer Vision (2021).

Multimodal Fusion with Deep Neural Networks for Leveraging CT Imaging and Electonic Health Record: A Case-study in Pulmonary Embolism Detection
Shih-Cheng Huang, *Anuj Pareek*, Roham Zamanian, Imon Banerjee and Matthew P. Lungren*
Nature Scientific Reports (2020)

Fusion of Medical Imaging and Electronic Health Records using Deep Learning: A Systematic Review and Implementation Guidelines
Shih-Cheng Huang, *Anuj Pareek*, Saeed Seyyedi, Imon Banerjee and Matthew P. Lungren*
Nature Partner Journals (NPJ) Digital Medicine (2020)

PENet – A Scalable Deep-learning Model for Automated Diagnosis of Pulmonary Embolism using Volumetric CT Imaging
***Shih-Cheng Huang**, Tanay Kothari*, Imon Banerjee, Chris Chute, Robyn L. Ball, Norah Borus, Andrew Huang, Bhavik N. Patel, Pranav Rajpurkar, Jeremy Irvin, Jared Dunnmon, Joseph Bledsoe, Katie Shpanskaya, Abhay Dhaliwal, Roham Zamanian, Andrew Y. Ng and Matthew P. Lungren*
Nature Partner Journals (NPJ) Digital Medicine (2020)

OTHER EXPERIENCES

- HAI-Google Grant recipient: $100,000 Cloud Compute Credit 2022

- Lecturer for Radiological Society of North America (RSNA) Deep Learning Lab 2021, 2022
- Reviewer for conferences: NeurIPS 2022
- Webmaster for Machine Learning for Health (ML4H) 2022
- HAI-Google Grant recipient: $100,000 Cloud Compute Credit 2021
- Presenter at MedAI November 2021
- Reviewer for conferences: ICCV, ICML, NeurIPS 2021
- Presenter at Microsoft Research Cambridge Lecture Series April 8, 2021
- Teaching Assistant, BIOMEDIN 260 Computational Methods for Biomedical Imaging Spring, 2020, 2021
- Teaching Assistant, BIODS 388 Stakeholder Competencies for Artificial Intelligence in Healthcare Fall, 2020
- Host and Instructor, SDSC MMTF Workshop and Hackathon 2018 May 7-9, 2018
- President, Undergraduate Bioinformatics Club June 2016 – June 2017
- Panelist, San Diego Machine Learning Society – AI Forum October 27, 2016
- Teaching Assistant, CS 190 Introduction to Bioinformatics Spring, 2016