

# Mars Huang

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## EDUCATION

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**Stanford University** *Expected June 2024*  
Doctor of Philosophy in Biomedical Informatics GPA: 4.10  
• *Co-advised by Drs Serena Yeung, Curtis P. Langlotz, Nigam Shah and Matthew P. Lungren*

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

## WORK EXPERIENCES

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**Google** *September 2023 – December 2023*  
*Research Intern – Advising by Soham Ghosh*  
• Designed object embeddings to improve dense semantic understanding in Vision Language Models (VLMs)  
• Curating a multi-image Visual Question Answering dataset to benchmark VLM’s dense semantic understanding

**Microsoft** *June 2023 – September 2023*  
*Research Intern - Advised by Dr. Hoifung Poon*  
• Developed a VLM for generating radiology reports from Chest X-rays that out-performs state-of-the-art by 6.6%

**Salesforce** *June 2021 – September 2021*  
*Medical AI Research Intern - Advised by Dr. Andre Esteva*  
• Designed and implemented a multimodal self-supervised framework for prostate cancer long-term outcome prediction

**Chan Zuckerberg Initiative** *July 2019 – September 2019*  
*Computational Biology Intern – Advised by Dr. Nicholas Sofroniew*  
• Created [Segmentify](#), an interactive and general-purpose cell segmentation plugin for the image viewer Napari

**San Diego Supercomputer Center** *December 2016 – May 2018*  
*Research Programmer – Advised by Dr. Peter Rose*  
• Developed [mmtf-pyspark](#), a python package that parallelizes analysis and mining of protein data using Apache-Spark

## SELECTED PUBLICATIONS

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### **Compare and Contrast: Enhancing Vision Language Models for Multi-image VQAs**

*Shih-Cheng Huang\**, Soham Ghosh, Weicheng Kuo, Siyuan Qiao, Howard Zhou, Serena Yeung  
[Manuscript in preparation]

### **LLaVA-Rad: A Foundation Model for Radiology Report Generation**

*Shih-Cheng Huang\**, Juan Manuel Zambrano\*, Naoto Usuyama, Sheng Zhang, Akshay Chaudhari, Hoifung Poon  
[Manuscript in preparation]

### **INSPECT: A Multimodal Dataset for Patient Outcome Prediction of Pulmonary Embolisms**

*Shih-Cheng Huang*, Zepeng Huo, Ethan Steinberg, Chia-Chun Chiang, Curtis Langlotz, Matthew P Lungren, et al.  
Neural Information Processing Systems (2023)

### **LOVM: Language-Only Vision Model Selection**

Orr Zohar, *Shih-Cheng Huang*, Kuan-Chieh Wang, Serena Yeung  
Neural Information Processing Systems (2023)

### **DrML: 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)

### **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)

### **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*  
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, et al.*  
Nature Partner Journals (NPJ) Digital Medicine. (2022)

### **GLoRIA: A Multimodal Global-Local Representation Learning Framework for Medical Image Recognition**

*Shih-Cheng Huang, Liyue Shen, Matthew P. Lungren, Serena Yeung*  
International Conference on Computer Vision (2021).

### **Multimodal Fusion with Deep Neural Networks for Leveraging CT Imaging and Electronic 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 CT Imaging**

*Shih-Cheng Huang\**, Tanay Kothari\*, Imon Banerjee, et. al.  
Nature Partner Journals (NPJ) Digital Medicine (2020)

## **OTHER EXPERIENCES**

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- Reviewer for conferences: Nature Communications, Nature Scientific Reports, ICLR, WACV 2023
- Presenter at Genentech's AI Series May 19th, 2023
- HAI-Google Grant recipient: \$100,000 Cloud Compute Credit 2021, 2022
- Lecturer for Radiological Society of North America (RSNA) Deep Learning Lab 2021, 2022
- Reviewer for conferences: NeurIPS, MICCAI 2022
- Presenter at [MedAI](#) November 2021
- Reviewer for conferences: ICCV, ICML, NeurIPS 2021
- Presenter at Microsoft Research Cambridge Lecture Series April 8, 2021
- President, Undergraduate Bioinformatics Club June 2016 – June 2017