HAOMIN CHEN

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SUMMARY

Hopkins Computer Science PhD candidate with a background of deep learning in medical imaging, interpretable AI systems with human interaction and object segmentation and information extraction in gigapixel-level images. Excellent communication skills and ability to work on teams.

EDUCATIONS

Johns Hopkins University   **Jan 2018 - Dec 2022 (expected)**
Doctor of Philosophy, Computer Science   *Baltimore, MD, USA*
Advisors: Dr. Mathias Unberath, Dr. Gregory Hager
First author publications: 5 conference papers, 1 journal paper, 2 journal papers under review

Columbia University   **Sep 2016 - Dec 2017**
Master of Arts, Statistics   *New York City, NY, USA*
Overall GPA: 4.1 / 4.0

Fudan University   **Sep 2012 - Jun 2016**
Bachelor of Science, Physics   *Shanghai, CHINA*
Core GPA: 3.6 / 4.0

SKILLS

Python, C++, PyTorch, Tensorflow, Matlab, R

INTERNSHIPS

NVIDIA, Bethesda   **May 2018 - Dec 2018**
Applied Research Intern   *Bethesda, MD, USA*
Deep Hierarchical Multi-label Classification of Abnormalities in Chest X-rays
· Paper accepted by MIDL 2019 with oral presentation.
· Special invitation to Journal "Medical Image Analysis" and paper accepted.
· Constructed Hierarchical label structure following clinical taxonomy.
· Developed a two-stage training procedure to fit the extreme label imbalance dataset.
· Derived a numerically stable math formulation to avoid floating point underflow calculating loss.

PingAn, Bethesda   **May 2019 - Dec 2019**
Applied Research Intern   *Bethesda, MD, USA*
Anatomical symmetric learning for Fracture Detection in Pelvic Trauma X-ray
· Paper accepted by ECCV 2020 with poster presentation.
· Mimicked radiologists' practice by comparing vertical asymmetric areas via Siamese network.
· Aligned Siamese features according to detected pelvic structure landmarks.
· Proposed pixel-wise contrastive loss to learn anatomically asymmetric information explicitly.

PingAn Technology, Shanghai   **May 2017 - Aug 2017**
Data Mining Scientist Intern   *Shanghai, CHINA*
  Lung nodule detection in CT scans
  · Top 6 out of 2887 teams in the Skylake competition sponsored by Intel and Alibaba.
  · Applied PyTorch, 3D UNet and Caffe, Faster RCNN to detect lung nodules in 1000 CT scans.
  · Used fusion method to reduce false positives.

SELECTED PUBLICATIONS

The * indicates an equal contribution. Full publications in [Google scholar](#).

Journal papers:

1. ***Haomin Chen***, Shun Miao, Daguang Xu, Gregory Hager, Adam Harrison. Deep hierarchical multi-label classification applied to chest X-ray abnormality taxonomies. (2020) **Medical Image Analysis (IF=13.82)** 66, 101811.

Conference papers:

1. ***Haomin Chen****, Yirui Wang*, Kang Zheng, Weijian Li, Chi-Tung Chang, Adam P. Harrison, Jing Xiao, Gregory D. Hager, Le Lu, Chien-Hung Liao, Shun Miao. Anatomy-aware siamese network: Exploiting semantic asymmetry for accurate pelvic fracture detection in x-ray images. **ECCV** 2020.

2. ***Haomin Chen***, Shun Miao, Daguang Xu, Gregory D. Hager, Adam P. Harrison. Deep hierarchical multi-label classification of chest X-ray images. **MIDL** 2019.

3. ***Haomin Chen***, T. Y. Alvin Liu, Catalina, Gomez, Mathias Unberath. An Interpretable Algorithm for Uveal Melanoma Subtyping from Whole Slide Cytology Images. **IMLH**, 2021. *(ICML workshop)*

4. ***Haomin Chen***, T. Y. Alvin Liu, Zelia M. Correa, Mathias Unberath. An Interactive Approach to Region of Interest Selection in Cytologic Analysis of Uveal Melanoma Based on Unsupervised Clustering. **OMIA**, 2020 *(MICCAI workshop)*

5. Yifan Gao*, ***Haomin Chen****, Catalina Gomez*, Sophie Cai, Craig K. Jones, Adrienne Scott, Mathias Unberath. An Interpretable Approach to Identifying Sea Fan Neovascularization in Ultra-Widefield Color Fundus Photographs of Patients With Sickle Cell Hemoglobinopathy. **SPIE**, 2021.

6. T. Y. Alvin Liu, Hongxi Zhu, ***Haomin Chen***, J. Fernando Arevalo, Ferdinand K. Hui, Paul H. Yi, Jinchi Wei, Mathias Unberath, Zelia M. Correa. Gene Expression Profile Prediction in Uveal Melanoma Using Deep Learning: A Pilot Study for the Development of an Alternative Survival Prediction Tool. **Ophthalmology Retina**, 2020.

PREPRINTS

The * indicates an equal contribution.

1. ***Haomin Chen****, Catalina Gomez*, Chien-Ming Huang, Mathias Unberath. INTRPRT: A Systematic Review of and Guidelines for Designing and Validating Transparent AI in Medical Image Analysis. In submission.

AWARDS

National College Students Mathematics Competition, National Silver Medal.	*Oct 2013*
National College Students Mathematics Model Contest, the third prize of Shanghai.	*Oct 2014*
Second-class scholarship of Fudan University.	*May 2015*
Mensa Member in China.	*May 2016*