

# Yu Tian

## Profile

- Postdoctoral Research Fellow of University of Pennsylvania.
- Previous Postdoc at Harvard University, PhD in computer science from the Australian Institute for Machine Learning (AIML), University of Adelaide.

## Areas of Interests

- **Computer Vision, Medical Imaging, AI for Medicine, Trustworthy AI, AI for Science.**

## Education/Training

7/2024-Now **Postdoctoral**, University of Pennsylvania.

- Advised by: Prof. Christos Davatzikos and Prof. MacLean Nasrallah

8/2022-7/2024 **Postdoctoral**, Harvard University.

- Advised by: Prof. Tobias Elze and Prof. Mengyu Wang

6/2022 **PhD**, *Computer Science*, Australian Institute for Machine Learning, University of Adelaide.

- **UoA ranked 92nd overall and 13th in Artificial Intelligence, globally by US News.**
- PhD thesis: Anomaly Detection in Computer Vision and Medical Imaging.
- Advised by: Prof. Gustavo Carneiro.
- Awarded University of Adelaide ECMS Research Scholarship

12/2018 **BSc (First-Class Honours)**, *Computer Science*, University of Adelaide, Australia, GPA 7.0/7.0.

- Thesis: Deep Learning Approach for Five-class Polyp Detection and Classification
- Completing the four-year bachelor's degree in three years

## Publications

- Dr. Yu Tian has authored/co-authored over 30 papers in top-tier machine learning, computer vision, and medical AI venues (ICLR, AAAI, CVPR, ICCV, ECCV, MICCAI, TPAMI, TMI, MedIA, etc.). As of 10/2024, his works have been cited over **1,460** times, with h-index = **17** [[Google Scholar](#)]. Below are his publications: \* **indicates equal contribution**, ‡ **denotes the author is his mentee**.

- 37 **Yu Tian\***, Congcong Wen\*, Min Shi, Muhammad Muneeb Afzal, Hao Huang, Muhammad Osama Khan, Yan Luo, Yi Fang, and Mengyu Wang. FairDomain: Achieving Fairness in Cross-Domain Medical Image Segmentation and Classification. *European Conference on Computer Vision (ECCV)*, 2024.
- 36 Yueyin Pang\*, Melody Tang\*, Min Shi, **Yu Tian**, Yan Luo, Tobias Elze, Louis R. Pasquale, Nazlee Zebardast, Michael V. Boland, David S. Friedman, Lucy Q. Shen, Anagha Lokhande, Mengyu Wang. Impact of Demographics on Regional Visual Field Loss and Deterioration in Glaucoma. *Translational Vision Science & Technology (TVST)*, 2024.
- 35 Min Shi, Anagha Lokhande, **Yu Tian**, Yan Luo, Mohammad Eslami, Saber Kazeminasab, Tobias Elze, Lucy Q. Shen, Louis R. Pasquale, Sarah R. Wellik, Carlos Gustavo De Moraes, Jonathan S Myers, Nazlee Zebardast, David S Friedman, Michael V Boland, Mengyu Wang. Transformer-Based Deep Learning Prediction of 10-Degree Humphrey Visual Field Tests From 24-Degree Data. *Translational Vision Science & Technology (TVST)*, 2024.
- 34 Jinan Zou\*‡, Maihao Guo\*‡, **Yu Tian\***, Yuhao Lin, Haiyao Cao, Lingqiao Liu, Ehsan Abbasnejad, and Javen Qinfeng Shi. Semantic Role Labeling Guided Out-of-distribution Detection. *The Joint International Conference on Computational Linguistics, Language Resources and Evaluation (LREC-COLING)*, 2024.
- 33 Yan Luo, Min Shi, Osama Khan, Muhammad Afzal, Hao Huang, Shuaihang Yuan, **Yu Tian**, Tobias Elze, and Mengyu Wang. FairCLIP: Harnessing Fairness in Vision-and-Language Learning. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2024.

- 32 Jiawen Zhu, Choubo Ding, **Yu Tian**, and Guansong Pang. Anomaly Heterogeneity Learning for Open-set Supervised Anomaly Detection. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2024.
- 31 Yan Luo\*, **Yu Tian\***, Min Shi, Tobias Elze, Mengyu Wang. Harvard Glaucoma Fairness: A Retinal Nerve Disease Dataset for Fairness Learning and Fair Identity Normalization. *IEEE Transactions on Medical Imaging (TMI)*, 2024.
- 30 Yuyuan Liu, **Yu Tian**, Chong Wang, Yuanhong Chen, Fengbei Liu, Vasileios Belagiannis, and Gustavo Carneiro. Translation Consistent Semi-supervised Segmentation for 3D Medical Images. *IEEE Transactions on Medical Imaging (TMI)*, 2024.
- 29 Yuanhong Chen, Yuyuan Liu, Chong Wang, Michael Elliott, Chun Fung Kwok, Carlos Peña-Solorzano, **Yu Tian**, Fengbei Liu, Helen Frazer, Davis J McCarthy, Gustavo Carneiro. BRAIxDet: Learning to Detect Malignant Breast Lesion with Incomplete Annotations. *Medical Image Analysis (MedIA)*, 2024.
- 28 Min Shi, **Yu Tian**, Yan Luo, Tobias Elze, and Mengyu Wang. RNFLT2Vec: Artifact-Corrected Representation Learning for Retinal Nerve Fiber Layer Thickness Maps. *Medical Image Analysis (MedIA)*, 2024.
- 27 **Yu Tian**, Min Shi, Yan Luo, Ava Kouhana, Tobias Elze, and Mengyu Wang. FairSeg: A Large-scale Medical Image Segmentation Dataset for Fairness Learning with Fair Error-Bound Scaling. *International Conference on Learning Representations (ICLR)*, 2024.
- 26 Qihang Zhou\*<sup>‡</sup>, Guansong Pang\*, **Yu Tian**, Shibo He, Jiming Chen. AnomalyCLIP: Object-agnostic Prompt Learning for Zero-shot Anomaly Detection. *International Conference on Learning Representations (ICLR)*, 2024.
- 25 **Yu Tian**, Fengbei Liu<sup>‡</sup>, Guansong Pang, Yuanhong Chen, Yuyuan Liu, Johan Verjans, Rajvinder Singh, and Gustavo Carneiro. Self-supervised Pseudo Multi-class Pre-training for Unsupervised Anomaly Detection and Segmentation in Medical Images. *Medical Image Analysis (MedIA)*, 2023.
- 24 Min Shi, Jessica A Sun, Anagha Lokhande, **Yu Tian**, Yan Luo, Tobias Elze, Lucy Q Shen, and Mengyu Wang. Artifact Correction in Retinal Nerve Fiber Layer Thickness Maps Using Deep Learning and Its Clinical Utility in Glaucoma. *Translational Vision Science & Technology (TVST)*, 2023.
- 23 **Yu Tian**, Guansong Pang, Yuyuan Liu, Chong Wang, Yuanhong Chen, Fengbei Liu, Rajvinder Singh, Johan W Verjans, Mengyu Wang, and Gustavo Carneiro. Unsupervised Anomaly Detection in Medical Images with a Memory-augmented Multi-level Cross-attentional Masked Autoencoder. *International Workshop on Machine Learning in Medical Imaging (MICCAI-MLMI)*, 2023.
- 22 Yan Luo\*, Min Shi\*, **Yu Tian\***, Tobias Elze, Mengyu Wang. Harvard Glaucoma Detection and Progression: A Multimodal Multitask Dataset and Generalization-Reinforced Semi-Supervised Learning. *International Conference on Computer Vision (ICCV)*, 2023.
- 21 Chong Wang, Yuyuan Liu, Yuanhong Chen, Fengbei Liu, **Yu Tian**, Davis J McCarthy, Helen Frazer, and Gustavo Carneiro. Learning Support and Trivial Prototypes for Interpretable Image Classification. *International Conference on Computer Vision (ICCV)*, 2023.
- 20 Yuanhong Chen, Fengbei Liu, Hu Wang, Chong Wang, **Yu Tian**, Yuyuan Liu, and Gustavo Carneiro. BoMD: Bag of Multi-label Descriptors for Noisy Chest X-ray Classification. *International Conference on Computer Vision (ICCV)*, 2023.
- 19 Yuyuan Liu\*<sup>‡</sup>, Choubo Ding\*<sup>‡</sup>, **Yu Tian**, Guansong Pang, Vasileios Belagiannis, Ian Reid, and Gustavo Carneiro. Residual Pattern Learning for Pixel-wise Out-of-Distribution Detection in Semantic Segmentation. *International Conference on Computer Vision (ICCV)*, 2023.
- 18 Min Shi, Anagha Lokhande, Mojtaba S Fazli, Vishal Sharma, **Yu Tian**, Yan Luo, Louis R Pasquale, Tobias Elze, Michael V Boland, Nazlee Zebardast, David S Friedman, Lucy Q Shen, Mengyu Wang. Artifact-Tolerant Clustering-Guided Contrastive Embedding Learning for Ophthalmic Images in Glaucoma. *IEEE Journal of Biomedical and Health Informatics (JBHI)*, 2023.
- 17 **Yu Tian\***, Yuyuan Liu<sup>‡</sup>, Fengbei Liu, Guansong Pang, Yuanhong Chen, Yuyuan Liu, and Gustavo Carneiro. Pixel-wise Energy-biased Abstention Learning for Anomaly Segmentation on Complex Urban Driving Scenes. *European Conference on Computer Vision (ECCV)*, 2022, **Oral**. (Acceptance rate < 2.7%)

- 16 Yuanhong Chen, Hu Wang, Chong Wang, **Yu Tian**, Fengbei Liu, Yuyuan Liu, Michael Elliott, Davis J McCarthy, Helen Frazer, and Gustavo Carneiro. Multi-view Local Co-occurrence and Global Consistency Learning Improve Mammogram Classification Generalisation. *International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI)*, 2022, **Early Accept.**
- 15 Chong Wang, Yuanhong Chen, Yuyuan Liu, **Yu Tian**, Fengbei Liu, Davis J McCarthy, Michael Elliott, Helen Frazer, Gustavo Carneiro. Knowledge Distillation to Ensemble Global and Interpretable Prototype-based Mammogram Classification Models. *International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI)*, 2022, **Early Accept.**
- 14 Fengbei Liu<sup>‡</sup>, Yuanhong Chen<sup>‡</sup>, **Yu Tian**, Liu Yuyuan, Wang Chong, Vasileios Belagiannis, and Gustavo Carneiro. NVUM: Non-Volatile Unbiased Memory for Robust Medical Image Classification. *International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI)*, 2022, **Early Accept.**
- 13 **Yu Tian**, Guansong Pang, Fengbei Liu, Yuyuan Liu, Chong Wang, Yuanhong Chen, Johan W Verjans, and Gustavo Carneiro. Contrastive Transformer-based Multiple Instance Learning for Weakly Supervised Polyp Frame Detection. *International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI)*, 2022, **Early Accept.**
- 12 Fengbei Liu<sup>\*‡</sup>, **Yu Tian\***, Yuanhong Chen, Yuyuan Liu, Vasileios Belagiannis, and Gustavo Carneiro. ACPL: Anti-curriculum Pseudo-labelling for Semi-supervised Medical Image Classification. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2022.
- 11 Yuyuan Liu<sup>‡</sup>, **Yu Tian**, Yuanhong Chen, Fengbei Liu, Vasileios Belagiannis, and Gustavo Carneiro. Perturbed and Strict Mean Teachers for Semi-supervised Semantic Segmentation. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2022.
- 10 Yuanhong Chen<sup>\*‡</sup>, **Yu Tian\*(corresponding author)**, Guansong Pang, and Gustavo Carneiro. Deep One-Class Classification via Interpolated Gaussian Descriptor. In *Thirty-Sixth AAAI Conference on Artificial Intelligence (AAAI)*, 2022, **Oral.**
- 9 **Yu Tian**, Guansong Pang, Yuanhong Chen, Rajvinder Singh, Johan W Verjans, and Gustavo Carneiro Weakly-supervised Video Anomaly Detection with Robust Temporal Feature Magnitude Learning. *International Conference on Computer Vision (ICCV)*, 2021.
- 8 **Yu Tian**, Guansong Pang, Fengbei Liu, Seon Ho Shin, Johan W Verjans, Rajvinder Singh, and Gustavo Carneiro. Constrained Contrastive Distribution Learning for Unsupervised Anomaly Detection and Localisation in Medical Images. *International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI)*, 2021.
- 7 Fengbei Liu<sup>\*‡</sup>, **Yu Tian\***, Filipe R Cordeiro, Vasileios Belagiannis, Ian Reid, and Gustavo Carneiro. Self-supervised Mean Teacher for Semi-supervised Chest X-ray Classification. *International Workshop on Machine Learning in Medical Imaging (MICCAI-MLMI)*, 2021.
- 6 **Yu Tian**, Gabriel Maicas, Leonardo Zorron Cheng Tao Pu, Rajvinder Singh, Johan W Verjans, and Gustavo Carneiro. Few-Shot Anomaly Detection for Polyp Frames from Colonoscopy. *International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI)*, 2020.
- 5 Yuyuan Liu<sup>\*‡</sup>, **Yu Tian\*(corresponding author)**, Gabriel Maicas, Leonardo Zorron Cheng Tao Pu, Rajvinder Singh, Johan W Verjans, and Gustavo Carneiro. Photoshopping Colonoscopy Video Frames. *IEEE 17th International Symposium on Biomedical Imaging (ISBI)*, 2020.
- 4 **Yu Tian**, Leonardo ZCT Pu, Rajvinder Singh, Alastair D Burt, and Gustavo Carneiro. One-stage Five-class Polyp Detection and Classification. *IEEE 16th International Symposium on Biomedical Imaging (ISBI)*, 2019.
- 3 **Yu Tian**, Leonardo Zorron Cheng Tao Pu, Yuyuan Liu, Gabriel Maicas, Johan W Verjans, Alastair D Burt, Seon Ho Shin, Rajvinder Singh, and Gustavo Carneiro. Detecting, Localising and Classifying Polyps from Colonoscopy Videos using Deep Learning. Book chapter in *Deep Learning for Medical Image Analysis (Second Edition)*, 2024.
- 2 Leonardo Z.C.T. Pu<sup>‡</sup>, Gabriel Maicas, **Yu Tian**, Takeshi Yamamura, Masanao Nakamura, Hiroto Suzuki, Gurfarmaan Singh, Khizar Rana, Yoshiki Hirooka, Alastair D Burt, Mitsuhiro Fujishiro, Gustavo Carneiro, and Rajvinder Singh. Computer-aided diagnosis for characterization of colorectal lesions: comprehensive software that includes differentiation of serrated lesions. *Gastrointestinal Endoscopy (GIE)*, 2020. (IF = 10.396)

- 1 Leonardo Z.C.T. Pu, Gabriel Maicas, **Yu Tian**, Yan Yamamura, Takeshi Nakamura, Masanao Suzuki, Gurfarmaan Singh, Khizar Rana, Yoshiki Hirooka, Alastair D. Burt. Prospective study assessing a comprehensive computer-aided diagnosis for characterization of colorectal lesions: Results from different centers and imaging technologies. *Journal of Gastroenterology and Hepatology*, 2019. (IF = 4.029)

### Preprint/Under-Review

- 15 Minghan Li<sup>\*†</sup>, Congcong Wen<sup>\*</sup>, **Yu Tian**<sup>\*</sup>, Min Shi, Yan Luo, Hao Huang, Yi Fang, and Mengyu Wang. FairFedMed: Achieving Equity in Medical Federated Learning via FairLoRA. *The Thirteenth International Conference on Learning Representations (ICLR)*, Under Review, 2025.
- 14 Chengzhi Liu<sup>†</sup>, Zile Huang, Zhe Chen, Feilong Tang, **Yu Tian**, Zhongxing Xu, zihong luo, Yalin Zheng, Yanda Meng. Incomplete Modality Disentangled Representation for Ophthalmic Disease Grading and Diagnosis. *The 39th Annual AAAI Conference on Artificial Intelligence (AAAI)*, Under Review, 2025.
- 13 Jiahuan Yan<sup>†</sup>, Zhouyang Hong, Yu Zhao, **Yu Tian**, Yunxin Liu, Travis Davies, and Luhui Hu. Generalized Robot Learning Framework. *IEEE International Conference on Robotics & Automation (ICRA)*, Under Review, 2025.
- 12 Yan Luo, Congcong Wen, **Yu Tian**, Min Shi, Muhammad Osama Khan, Tobias Elze, Yi Fang, and Mengyu Wang. Impact of Disease Prevalence and Data Distribution on Fairness Guarantees in Equitable Deep Learning. Submit to *IEEE Computer Vision and Pattern Recognition Conference (CVPR)*, Under Review, 2025.
- 11 Min Shi, Muhammad Muneeb, Hao Huang, Congcong Wen, Yan Luo, Muhammad Osama Khan, **Yu Tian**, and others. Equitable Deep Learning for Diabetic Retinopathy Detection Using Multi-dimensional Retinal Imaging with Fair Adaptive Scaling: A Retrospective Study. *Lancet Digital Health*, Under Review, 2024.
- 10 Min Shi, Yan Luo, **Yu Tian**, and others. Equitable Artificial Intelligence for Glaucoma Screening with Fair Identity Normalization. *NPJ Digital Medicine*, Under Review, 2024.
- 9 Christopher Kelly<sup>†</sup>, Luhui Hu, Jiayin Hu, **Yu Tian**, and others. VisionGPT-3D: A Generalized Multimodal Agent for Enhanced 3D Vision Understanding. Submit to *IEEE Computer Vision and Pattern Recognition Conference (CVPR)*, 2025.
- 8 DeShun Yang<sup>\*</sup>, Luhui Hu<sup>\*</sup>, **Yu Tian**<sup>\*</sup>, and others. WorldGPT: A Sora-Inspired Video AI Agent as Rich World Models from Text and Image Inputs. Submit to *IEEE Computer Vision and Pattern Recognition Conference (CVPR)*, 2025.
- 7 Hu Wang, Congbo Ma, Yuyuan Liu, Yuanhong Chen, **Yu Tian**, Jodie Avery, Louise Hull, and Gustavo Carneiro. Submit to *IEEE Computer Vision and Pattern Recognition Conference (CVPR)*, 2025.
- 6 Yan Luo, Min Shi, Muhammad Osama Khan, Muhammad Muneeb Afzal, Titus Fidelis Wuermeling, Congcong Wen, Min Shi, **Yu Tian**, Yi Fang and Mengyu Wang. FairDiffusion: Enhancing Equity in Latent Diffusion Models via Fair Bayesian Perturbation. *Science Advances*, Under Review, 2024.
- 5 Yan Luo<sup>\*</sup>, Muhammad Osama Khan<sup>\*</sup>, **Yu Tian**<sup>\*</sup>, Min Shi, Zehao Dou, Tobias Elze, Yi Fang, and Mengyu Wang. FairVision: Equitable Deep Learning for Eye Disease Screening via Fair Identity Scaling. *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, **Major Revision** 2024.
- 4 **Yu Tian**, Carola Rutigliani, Yan Luo, Tobias Elze, Toralf Kirsten, Mengyu Wang, and Franziska G. Rauscher. A Deep Learning Framework for Quantifying Impacts of Eye and Systemic Diseases on Retinal Layers. *JAMA Network Open (Selected as Oral in ARVO Imaging)*, Under Review, 2024.
- 3 Min Shi<sup>\*</sup>, **Yu Tian**<sup>\*</sup>, Congcong Wen, Yan Luo, Tobias Elze, Yi Fang, and Mengyu Wang. Equitable Artificial Intelligence for Medical Diagnostics with Fair Identity Attention. *Nature Machine Intelligence (NMI)*, Under Review, 2024.
- 2 Saber Kazeminasab, Sayuri Sekimitsu, Mojtaba Fazli, Mohammad Eslami, Min Shi, **Yu Tian**, Yan Luo, Mengyu Wang, Tobias Elze, Nazlee Zebardast. An Artificial Intelligence Method for Phenotyping of OCT Scans Using Unsupervised and Self-supervised Deep Learning. *IEEE Journal of Biomedical and Health Informatics (JBHI)*, Under Review, 2023.

- 1 Fengbei Liu, Yuanhong Chen, Chong Wang, **Yu Tian**, and Gustavo Carneiro. Asymmetric Co-teaching with Multi-view Consensus for Noisy Label Learning. *ArXiv Preprint*, Under Review, 2024.

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## Peer-Reviewed Conference Abstracts

- 33 Mohammad Eslami, Lakshmi Sritan Motati, Rohan Kalahasty, Srikar Kusumanchi, Saber Kazeminasab, Min Shi, Yan Luo, **Yu Tian**, Dhruva Gupta, Milen Raytchev, Michael G Morley, Mengyu Wang, Nazlee Zebardast, Tobias Elze. A Practical Barrier: AI-Powered CDR Extraction in Fundus Photos. *Investigative Ophthalmology & Visual Science (ARVO Imaging)*, 2024.
- 32 Saber Kazeminasab Hashemabad, Surya Pulukuri, Yan Zhao, Kanza Aziz, Sayuri Sekimitsu, Mohammad Eslami, Yan Luo, Min Shi, Yu Tian, Hannah Rana, Milen Raytchev, Mengyu Wang, Tobias Elze, Janey Wiggs, Nazlee Zebardast. Genetically Adjusted Optic Cup to Disc Ratio (CDR) Using a Two-Phase Training Deep Learning Model. *Investigative Ophthalmology & Visual Science (ARVO Imaging)*, 2024.
- 31 **Yu Tian**, Min Shi, Yan Luo, Mohammad Eslami, Saber Kazeminasab Hashemabad, Hannah Rana, Leo A Kim, Louis R Pasquale, Meenakashi Gupta, Tobias Elze, Lucia Sobrin, Mengyu Wang. External Eye Photos for Diabetic Retinopathy Detection with Deep Learning. *Investigative Ophthalmology & Visual Science (ARVO)*, 2024.
- 30 Yan Luo, **Yu Tian**, Min Shi, Leo A Kim, Louis R Pasquale, Meenakashi Gupta, Tobias Elze, Lucia Sobrin, Mengyu Wang. A New Deep Learning Technique Termed Fair Identity Scaling to Improve Model Equity for Diabetic Retinopathy Screening. *Investigative Ophthalmology & Visual Science (ARVO)*, **Oral**, 2024.
- 29 Yan Luo, **Yu Tian**, Min Shi, Leo A Kim, Louis R Pasquale, Meenakashi Gupta, Tobias Elze, Lucia Sobrin, Mengyu Wang. A New Deep Learning Technique Termed Fair Identity Scaling to Improve Model Equity for Diabetic Retinopathy Screening. *Investigative Ophthalmology & Visual Science (ARVO)*, **Oral**, 2024.
- 28 Sergio Mendoza, Luo Song, Yan Luo, **Yu Tian**, Min Shi, Leo A Kim, Tobias Elze, Mengyu Wang. Demographic Disparities in Diabetic Retinopathy Among US Eye Hospital Patients. *Investigative Ophthalmology & Visual Science (ARVO)*, 2024.
- 27 Hannah Rana, Saber Kazeminasab Hashemabad, Mohammad Eslami, Yan Luo, Min Shi, **Yu Tian**, Nazlee Zebardast, Mengyu Wang, Tobias Elze, Sajib Saha. Machine and deep learning predictions of visual fields from spectral-domain optical coherence tomography retinal nerve fiber layer thickness maps in glaucoma vision loss. *Investigative Ophthalmology & Visual Science (ARVO)*, 2024.
- 26 Iyad Majid, Abhilash Katuru, Min Shi, **Yu Tian**, Yan Luo, In Young Chun, Tobias Elze, Louis R Pasquale, Nazlee Zebardast, Michael V Boland, David S Friedman, Lucy Q Shen, Mengyu Wang. Comparing Optical Coherence Tomography Scans and Scanning Laser Ophthalmoscopy Fundus Photos in Glaucoma Detection Defined by Functional Tests. *Investigative Ophthalmology & Visual Science (ARVO)*, 2024.
- 25 Mengyu Wang, Yan Luo, Yu Tian, Lucy Q Shen, Tobias Elze, Nazlee Zebardast, Michael V Boland, David S Friedman, Louis R Pasquale, Min Shi. Equitable Deep Learning for Glaucoma Screening with Fair Identity Normalization. *Investigative Ophthalmology & Visual Science (ARVO)*, 2024.
- 24 Mohammad Eslami, Saber Kazeminasab Hashemabad, Hannah Rana, Milen Raytchev, Lucy Zha, Yan Luo, **Yu Tian**, Min Shi, Leo A Kim, Tobias Elze, Mengyu Wang. Improving Cup-Rim Segmentation by Fair Error-Bound Scaling With Segment Anything Model (SAM). *Investigative Ophthalmology & Visual Science (ARVO)*, 2024.
- 23 Mohammad Eslami, Saber Kazeminasab Hashemabad, Hannah Rana, Milen Raytchev, Yan Luo, Min Shi, **Yu Tian**, Michael G Morley, Nazlee Zebardast, Michael V Boland, David S Friedman, Mengyu Wang, Tobias Elze. Feasibility of Identifying High-Risk Glaucoma Patients Before the Onset of Disease. *Investigative Ophthalmology & Visual Science (ARVO)*, 2024.
- 22 Mohammad Eslami, Saber Kazeminasab Hashemabad, Hannah Rana, Milen Raytchev, Yan Luo, Min Shi, **Yu Tian**, Michael G Morley, Nazlee Zebardast, Michael V Boland, David S Friedman, Mengyu Wang, Tobias Elze. Feasibility of Identifying High-Risk Glaucoma Patients Before the Onset of Disease. *Investigative Ophthalmology & Visual Science (ARVO)*, 2024.

- 22 Saber Kazeminasab Hashemabad, Mohammad Eslami, Mousa Moradi, Hannah Rana, Min Shi, Yan Luo, **Yu Tian**, Milen Raytchev, Mengyu Wang, Tobias Elze, Nazlee Zebardast. An unsupervised deep learning method for identifying glaucoma progression patterns using longitudinal ganglion cell complex (GCC) scans. *Investigative Ophthalmology & Visual Science (ARVO)*, 2024.
- 21 Saber Kazeminasab Hashemabad, Mohammad Eslami, Mousa Moradi, Hannah Rana, Min Shi, Yan Luo, **Yu Tian**, Milen Raytchev, Mengyu Wang, Tobias Elze, Nazlee Zebardast. An unsupervised deep learning method for identifying glaucoma progression patterns using longitudinal ganglion cell complex (GCC) scans. *Investigative Ophthalmology & Visual Science (ARVO)*, 2024.
- 20 Abhilash Katuru, Iyad Majid, Min Shi, **Yu Tian**, Yan Luo, Tobias Elze, Mengyu Wang. Detecting Glaucoma Using Iris Photos with Deep Learning. *Investigative Ophthalmology & Visual Science (ARVO)*, **MIT Outstanding Poster Award**, 2024.
- 19 Min Shi, Yan Luo, **Yu Tian**, Mohammad Eslami, Saber Kazeminasab Hashemabad, Hannah Rana, Tobias Elze, Lucy Q Shen, Louis R Pasquale, Nazlee Zebardast, Michael V Boland, David S Friedman, Mengyu Wang. Personalizing Circumpapillary Retinal Nerve Fiber Layer Thickness Norms with Individual Retinal Anatomy in Glaucoma. *Investigative Ophthalmology & Visual Science (ARVO)*, 2024.
- 18 Luo, Yan, Min Shi, **Yu Tian**, Mohammad Eslami, Saber Kazeminasab Hashemabad, Hannah Rana, Tobias Elze, and others. Understanding Equity in Vision-and-Language Learning for Glaucoma Diagnosis with Deep Learning. *Investigative Ophthalmology & Visual Science (ARVO)*, **Oral**, 2024.
- 17 Mohammad Eslami, Saber Kazeminasab Hashemabad, Min Shi, Yan Luo, **Yu Tian**, and others. Evaluation of Landmark Localization Models for Fundus Imaging Conditions. *Investigative Ophthalmology & Visual Science (ARVO)*, **Oral**, 2023.
- 16 Saber Kazeminasab Hashemabad, Mohammad Eslami, Sayuri Sekimitsu, Min Shi, Yan Luo, **Yu Tian**, and others. A Performance Evaluation Method for Unsupervised OCT Phenotype Discovery using Deep Learning. *Investigative Ophthalmology & Visual Science (ARVO)*, 2023.
- 15 Mengyu Wang, Tobias Elze, Louis R. Pasquale, Lucy Q. Shen, Min Shi, **Yu Tian**, Yan Luo. Equitable Deep Learning for Glaucoma Progression Forecasting. *Investigative Ophthalmology & Visual Science (ARVO)*, **ARVO Travel Grant**, 2023.
- 14 Anagha Lokhande, Yan Luo, Min Shi, **Yu Tian**, and others. The Impact of Myopia on Regional Visual Field Loss and Progression in Glaucoma. *Investigative Ophthalmology & Visual Science (ARVO)*, **Oral, ARVO Travel Grant**, 2023.
- 13 Hui Wang, Franziska G. Rauscher, Elena Martinez-Perez, Thomas Peschel, Mohammad Eslami, Saber Kazeminasab, Yan Luo, Min Shi, **Yu Tian**, and others. Development and evaluation of an R library to align macula and optic disc centered optical coherence tomography (OCT) scans, *Investigative Ophthalmology & Visual Science (ARVO)*, 2023.
- 12 Min Shi, **Yu Tian**, and others. Explainable Deep Learning Prediction of 10-2 Visual Field from 24-2 Visual Field Using Transformer *Investigative Ophthalmology & Visual Science (ARVO)*, **Oral, ARVO Travel Grant**, 2023.
- 11 Lakshmi Sritan Motati, Rohan Kalahasty, Saber Kazeminasab, Min Shi, Yan Luo, **Yu Tian**, and others. Evaluation of Robustness of Disc/Cup Segmentation in Different Fundus Imaging Conditions. *Investigative Ophthalmology & Visual Science (ARVO)*, 2023.
- 10 Mohammad Eslami, Saber Kazeminasab Hashemabad, Min Shi, Yan Luo, **Yu Tian**, and others. Visual Field (VF) change-based archetype analysis for early-stage glaucoma detection. *Investigative Ophthalmology & Visual Science (ARVO)*, 2023.
- 9 **Yu Tian**, and others. Predicting Personalized Near-Normal Retinal Nerve Fiber Layer Thickness for Glaucoma Patients with Deep Learning. *Investigative Ophthalmology & Visual Science (ARVO)*, 2023.
- 8 Qingying Jin, Franziska G. Rauscher, Mengyu Wang, Mohammad Eslami, Saber Kazeminasab Hashemabad, Yan Luo, Min Shi, **Yu Tian**, and others. Circumpapillary retinal nerve fiber layer thickness (cpRNFLT) and medication related to the cardiovascular system. *Investigative Ophthalmology & Visual Science (ARVO)*, 2023.
- 7 Yan Luo, Min Shi, **Yu Tian**, and others. Retinal Surface Contour is Predictive of Fast Glaucoma Progression with Deep Learning. *Investigative Ophthalmology & Visual Science (ARVO)*, **ARVO Travel Grant**, 2023.

- 6 **Yu Tian**, and others. The Impact of Age-Related Macular Degeneration on Retinal Layers Quantified by Deep Learning. *Investigative Ophthalmology & Visual Science (ARVO Imaging)*, **Oral**, 2023.
- 5 Mohammad Eslami, Lakshmi Sritan Motati, Rohan Kalahasty, Saber Kazeminasab Hashemabad, Min Shi, Yan Luo, **Yu Tian** and others. Deep Learning based Adversarial Disturbances in Fundus Image Analysis. *Investigative Ophthalmology & Visual Science (ARVO Imaging)*, 2023.
- 4 Hannah Rana, Tobias Elze, Mohammad Eslami, Yan Luo, Sajib Saha, Min Shi, **Yu Tian**, and others. Improving structure-function correlations in mild glaucoma by aligning retinal nerve fiber layer thickness (RNFLT) maps to compensate for individual eye anatomy. *Investigative Ophthalmology & Visual Science (ARVO Imaging)*, 2023.
- 3 Saber Kazeminasab, Hannah Rana, Tobias Elze, Mohammad Eslami, **Yu Tian**, and others. A graph neural network-based clustering method for glaucoma detection from OCT scans considering uncertainties in the number of clusters. *Investigative Ophthalmology & Visual Science (ARVO Imaging)*, 2023.
- 2 Min Shi, **Yu Tian**, and others. Deep Learning Prediction of Visual Field Combining Optic Nerve Head and Macular Optical Coherence Tomography Scans. *Investigative Ophthalmology & Visual Science (ARVO Imaging)*, 2023.
- 1 Yan Luo, Franziska Rauscher, Tobias Elze, **Yu Tian**, and others. Assessing Retinal Layers' Association with Diabetes using a Deep Learning Framework. *Investigative Ophthalmology & Visual Science (ARVO Imaging)*, 2023.

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## Teaching Experience

- Artificial Intelligence in Medicine, Harvard University, 2023 Spring and Fall, 2024 Spring
- COMP SCI 7097A/B - Master Data Science Research Project, University of Adelaide, 2021

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## Invited Talks

- Invited talk on trustworthy AI for medical imaging at the University of Texas Southwestern Medical Center. – May, 2024
- Invited talk on trustworthy AI at Washington State University. – March, 2024
- Invited talk on medical AI at Icahn School of Medicine at Mount Sinai, New York. – Jan, 2024
- Invited talk on fairness learning at HIT Webinar.
- Invited talk on fairness learning at Suzhou Institute for Advanced Study, USTC.
- Selected as one of the five researchers to give a presentation about AI for vision science on Fellow's Recognition Day of Harvard Ophthalmology Department.
- Co-organising and presenting the CVPR 2023 tutorial 'Recent Advances in Anomaly Detection'.
- Invited talk at IJCAI Workshop on "AI for Anomalies and Novelties" 2021 about weakly supervised video anomaly detection.
- Invited talk at GESA Research Workshop 2022 about Anomaly Detection in Medical Imaging.
- Invited talk on medical anomaly detection at Suzhou Institute for Advanced Study, USTC.

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## Student Advising

- 2019 Yuyuan Liu (Honour student at the University of Adelaide - Now a PhD student at AIML)
  - Project: Unsupervised Anomaly Detection for Colonoscopy (Papers in ISBI and CVPR)
- 2019 Fengbei Liu (Junior PhD student at the University of Adelaide - Now a Postdoc at Cornell)
  - Project: Unsupervised Anomaly Detection for Colonoscopy (Papers in ISBI and CVPR)
- 2020 Yuanhong Chen (Honour student at the University of Adelaide - Now a research scientist at Sony)
  - Project: Image Anomaly Detection (Papers in AAAI and ICCV)
- 2021 Ruixuan Zou (Master student at the University of Adelaide - Now a research assistant at AIML)
  - Project: Anomaly Detection with Transformer for Medical Imaging
- 2022 Maihao Guo (Master student at the University of Adelaide)
  - Project: OoD detection in NLP (Papers in LREC-COLING)
- 2023 Jiawen Zhu (PhD student at Singapore Management University, co-supervise with Guansong Pang)
  - Project: Open-set anomaly detection (Papers in CVPR2024)

- 2023 Qihang Zhou (PhD student at the Zhejiang University, co-supervise with Guansong Pang)
  - Project: Anomaly detection with CLIP (Papers in ICLR2024)
- 2023 Axel De Nardin (Research Intern at Harvard)
  - Project: 3D Anomaly Detection and Medical AI
- 2023 Ava Kouhana (Research Intern at Harvard - Now a MSc student at Stanford)
  - Project: Algorithmic Fairness in Computer Vision and Medical Imaging (Papers in ICLR2024)
- 2023 Carola Rutigliani (Research Intern at Harvard - Now a postdoc at Stanford)
  - Project: Deep Learning for Quantifying Impacts of Eye and Systemic Diseases on Retinal Layers
- 2024 Milad Masroor (PhD student at University Of Surrey)
  - Project: Fairness learning in medical imaging
- 2024 Fanyang Yu (PhD student at UPenn)
  - Project: Weakly supervised Deep Learning and Foundation Models in Digital Pathology

## Professional Activities

### Guest Editor

- MDPI Sensors Special Issue: Biomedical Sensing and Bioinformatics Processing

### Journal Reviewer

- IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**)
- IEEE Transactions on Neural Networks and Learning Systems (**TNNLS**)
- IEEE Transactions on Medical Imaging (**TMI**)
- IEEE Transactions on Image Processing (**TIP**)
- International Journal of Computer Vision (**IJCV**)
- ACM Computing Surveys (**CSUR**)
- Pattern Recognition (**PR**)
- Computerized Medical Imaging and Graphics
- Plos Digital Health

### Conference Reviewer/Program Committee

- International Conference on Learning Representations (**ICLR**) 2024,2025
- Conference on Neural Information Processing Systems (**NeurIPS**) 2023, 2024
- International Conference on Computer Vision and Pattern Recognition (**CVPR**) 2022, 2023, 2024
- International Conference on Computer Vision (**ICCV**) 2021, 2023
- Thirty-Sixth AAAI Conference on Artificial Intelligence (**AAAI**) 2022, 2023, 2024
- European Conference on Computer Vision (**ECCV**) 2022, 2024
- International Conference on Medical Imaging Computing and Computer-Assisted Intervention (**MICCAI**) 2021, 2022, 2023, 2024
- ANDEA Workshop, **KDD** 2022

## Honors and Awards

- 2019–2022 University of Adelaide ECMS Research Scholarship (Full Fee)
- 2018 Dean’s Recognition of Academic Excellence of Honours Graduate (GPA 7.0/7.0)
- Media Coverage Harvard News, University of Adelaide, The Lead, The Advertiser Australia, Hospital and Healthcare Australia, IT Wire, Radiology Business