xiy525@mail.usask.ca
https://github.com/xinario
xinario.github.io
800 5 Ave SW Suite 1100
Calgary, AB, T2P 3T6

XIN YI

Education

2012–2017 PhD in Computer Science, IMG Lab
University of Saskatchewan
Dr Mark Eramian (supervisor)

2009–2012 MEng in Mechanical Engineering and Automatic Control
Northwestern Polytechnical University
Dr Weidong Liu (supervisor)

2005–2009 BEng in Mechanical Engineering
Hubei University of Technology

Areas of Expertise

Medical Image Analysis, Machine Learning, Deep Learning, Image Segmentation

Experience

2023–present Senior AI Lead, University of Saskatchewan, Saskatoon, Canada

2023–present Staff Research Scientist, Circle Cardiovascular Imaging, Calgary, Canada

2021–2023 Senior Software Research Engineer, Circle Cardiovascular Imaging, Calgary, Canada
- Working on improvement of the internal machine learning pipeline

2019–2021 Software Research Engineer, Circle Cardiovascular Imaging, Calgary, Canada
- Led the development of automated left atrium appendage (LAA) segmentation method for interventional planning on 3D cardiac CT
- Led the development of automated left atrium (LA) wall segmentation method for pre-procedural planning on 3D cardiac CT
- Led the development of coronary centerline detection and branch labeling method for coronary analysis on 3D cardiac CT
- Led the documentation process (model description, validation) that gets the coronary product successfully through FDA clearance
- Developed automated chamber segmentation methods for function analysis on cardiac MRI
- Developed automated landing zone detection method of Watchman device for interventional planning on 3D cardiac CT

2017–2019 Postdoctoral Fellow, University of Saskatchewan, Saskatoon, Canada
- Conducted research in medical image analysis using deep learning under the supervision of Dr Paul Babyn
- Developed method for low dose CT denoising using generative adversarial network
- Explored capabilities of unsupervised and semi-supervised adversarial training in melanoma recognition
- Developed method for catheter and tube detection on pediatric X-ray images
- Developed method for pneumonia detection on adult chest X-ray images using ensemble learning
- Conducted a thorough literature review of adversarial learning methods in medical image analysis
- Conducted a thorough literature review on the current status of computer-aided evaluation of catheter and tube placement

2016–2017 Research Assistant, University of Saskatchewan, Saskatoon, Canada
- Provided development support to the College of Education's internship Placement web application
- Involved with website development, server maintenance, and technical support

2012–2016 Research Assistant, University of Saskatchewan, Saskatoon, Canada
- Coordinated a small journal club consisting of members from my research lab and coordinated collection of suggested paper readings, and communicated selections to the group on a weekly basis
- Developed method for automatic weed seed species recognition in collaboration with the Canadian Food Inspection Agency (CFIA)
- Developed method for defocus blur segmentation based on a single image

2014 Teaching Assistant, University of Saskatchewan, Saskatoon, Canada
- CMPT 280 - Intermediate Data Structures and Algorithms

2012, 13 Teaching Assistant, University of Saskatchewan, Saskatoon, Canada
- CMPT 111 - Introduction to Computer Science and Programming
- CMPT 115 - Principles of Computer Science

2012 Software Development Engineer, Zhongxing Telecommunication Equipment Corporation (ZTE), Xi'an, China

Awards and Achievements

2021 VIP Innovation Champion (Circle Cardiovascular Imaging)

2021 Rank 46 out of 1305 teams (solo, top 4%) in SIIM-FISABIO-RSNA COVID-19 Detection

2019 Certificate of Merit (RSNA annual meeting)

2019 2nd place in the Scientific Research Project (CAR annual meeting)

2018 Rank 14 out of 1499 teams (solo, top 1%) in RSNA Pneumonia Detection Challenge

2015 Best Poster Award (ISTA annual meeting)

2014 Student Travel Award

2010 Excellent Student Cadre of Marine College

2009 Outstanding Graduate of Hubei University of Technology

2006, 07, 08 Elite Student Scholarship

2007 National Scholarship (top 3% students), by Ministry of Education of the People's Republic of China

Skills

Programming Matlab, Python (Pytorch, Tensorflow), C/C++ (OpenCV, VLFeat, Qt5), HTML/CSS/Javescript (Django), Lua (Torch), LaTeX

Language Chinese Mandarin (native), English (fluent)

Professional Activities

Conference Reviewer for CRV 2019, MICCAI 2019/2020/2021/2022, MIDL 2020

Journal Reviewer for MedIA, TMI, TIP, JBHI, SPL, etc

Publications

[1] Robert DE Henderson, Sirwa Padash, Scott J Adams, Carolyn Augusta, Xin Yi, and Paul Babyn. Neonatal catheter and tube placement and radiographic assessment statistics in relation to important anatomic landmarks. *American Journal of Perinatology*, 2023.

[2] Maurice Pradella, Michael B Scott, Muhammad Omer, Seth K Hill, Lisette Lockhart, Xin Yi, Alborz Amir-Khalili, Alireza Sojoudi, Bradley D Allen, Ryan Avery, et al. Fully-automated deep learning-based flow quantification of 2d cine phase contrast mri. *European Radiology*, 33(3):1707–1718, 2023.

[3] Scott J Adams, Robert DE Henderson, Xin Yi, and Paul Babyn. Artificial intelligence solutions for analysis of x-ray images. *Canadian Association of Radiologists Journal*, 72(1):60–72, 2021.

[4] Robert DE Henderson, Xin Yi, Scott J Adams, and Paul Babyn. Automatic detection and classification of multiple catheters in neonatal radiographs with deep learning. *Journal of Digital Imaging*, 34(4):888–897, 2021.

[5] Xin Yi, Scott J Adams, Robert DE Henderson, and Paul Babyn. Computer-aided assessment of catheters and tubes on radiographs: How good is artificial intelligence for assessment? *Radiology. Artificial intelligence*, 2(1), 2020.

[6] X Yi, Scott Adams, Paul Babyn, and Abdul Elnajmi. Automatic catheter and tube detection in pediatric x-ray images using a scale-recurrent network and synthetic data. *Journal of digital imaging*, pages 1–10, 2019.

[7] Xin Yi, Ekta Walia, and Paul Babyn. Generative adversarial network in medical imaging: A review. *Medical image analysis*, page 101552, 2019.

[8] Xin Yi and Paul Babyn. Sharpness-aware low-dose ct denoising using conditional generative adversarial network. *Journal of Digital Imaging*, Feb 2018.

[9] Xin Yi, Walia Ekta, and Paul Babyn. Unsupervised and semi-supervised learning with categorical generative adversarial networks assisted by wasserstein distance for dermoscopy image classification. *arXiv*, 2018.

[10] Xin Yi and Mark Eramian. Lbp-based segmentation of defocus blur. *IEEE Transactions on Image Processing*, 25(4):1626–1638, 2016.

[11] Xin Yi, Mark Eramian, Ruojing Wang, and Eric Neufeld. Identification of morphologically similar seeds using multi-kernel learning. In *Computer and Robot Vision (CRV), 2014 Canadian Conference on*, pages 143–150. IEEE, 2014.

Conference Presentations

2019 Radiology Society of North America annual meeting (RSNA), Chicago, Illinois (educational exhibit). *Computer-Aided Assessment of Catheters and Tubes on Radiographs: How Good is Artificial Intelligence for Assessment?*.

2019 Canadian Association of Radiologists annual meeting (CAR), Montréal, QC (oral). *Deep learning for automatic multi-catheter detection on pediatric radiographs*.

2018 International conference on Medical Imaging with Deep Learning (MIDL), Amsterdam, Netherland (poster). *Automatic catheter detection in pediatric X-ray images using a scale-recurrent network and synthetic data*.

2018 Canadian Association of Radiologists annual meeting (CAR), Montréal, QC (poster). *Evaluation of low-dose CT denoising on patient data using sharpness-aware conditional generative adversarial network*.

2017 The Scientific Conference on Machine Intelligence in Medical Imaging (C-MIMI) of the Society for Imaging Informatics in Medicine (SIIM), Baltimore, MD (oral). *Sharpness-aware Low dose CT denoising using conditional generative adversarial network*.

2017 The Scientific Conference on Machine Intelligence in Medical Imaging (C-MIMI) of the Society for Imaging Informatics in Medicine (SIIM), Baltimore, MD (oral). *Unsupervised and Semi-supervised learning with Categorical Generative Adversarial Networks for Dermoscopic Image Classification*.

2016 The International Seed Testing Association annual meeting, Tallinn, Estonia (poster). *Preliminary validation study using computer vision for seed identification*.

2015 The International Seed Testing Association annual meeting, Montevideo, Uruguay (poster, **first prize**). *Seed identification using computer vision techniques*.

2014 Conference on Computer and Robot Vision, Montréal, QC (oral). *Identification of morphologically similar seeds using multi-kernel learning*.