



Education

- 2012–2017 PhD in Computer Science, IMG Lab  [Dr Mark Eramian \(supervisor\)](#)
University of Saskatchewan
- 2009–2012 MEng in Mechanical Engineering and Automatic Control  [Dr Weidong Liu \(supervisor\)](#)
Northwestern Polytechnical University
- 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
- Designing and executing medical imaging AI research.
 - Preparing manuscripts and presentations.
 - Developing grant applications, from idea generation to writing.
 - Co-leading a research team, contributing to personnel recruitment, and providing mentorship to other group members.
- 2023–present Staff Research Scientist, Circle Cardiovascular Imaging, Calgary, Canada
- Leading the exploration of new technologies to enhance current machine learning models and architectures.
 - Overseeing the machine learning development stack and addressing integration challenges for scaling up to more complex enterprise deployment scenarios.
- 2021–2023 Senior Software Research Engineer, Circle Cardiovascular Imaging, Calgary, Canada
- Led the improvement of the internal machine learning development pipeline, including streamlining dataset versioning and experiment tracking, and standardizing coding guidelines.
 - Led the upgrade of the Tensorflow in the internal machine learning inference engine.
- 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 secured FDA clearance for the coronary product.
 - 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 a method for low dose CT denoising using generative adversarial network.
 - Explored capabilities of unsupervised and semi-supervised adversarial training in melanoma recognition.
 - Developed a method for catheter and tube detection on pediatric X-ray images.
 - Developed a 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 a method for automatic weed seed species recognition in collaboration with the Canadian Food Inspection Agency (CFIA).
 - Developed a 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/JavaScript (Django), Lua (Torch), \LaTeX
- Language Chinese Mandarin (native), English (fluent)

Professional Activities

Conference Reviewer for CRV 2019, MICCAI 2019/2021/2022/2023, MIDL 2020

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

Publications

- [1] Lisette Lockhart, **Xin Yi**, Nathan Cassady, Alexandra Nunn, Cory Swingen, and Alborz Amir-Khalili. Automatic landing zone plane detection in contrast-enhanced cardiac ct volumes. In *International Workshop on Statistical Atlases and Computational Models of the Heart*, pages 240–249. Springer, 2023.
- [2] 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.
- [3] 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.
- [4] 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.
- [5] 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.
- [6] **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.
- [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**, 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.
- [9] **Xin Yi** and Paul Babyn. Sharpness-aware low-dose ct denoising using conditional generative adversarial network. *Journal of Digital Imaging*, Feb 2018.
- [10] **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.
- [11] **Xin Yi** and Mark Eramian. Lbp-based segmentation of defocus blur. *IEEE Transactions on Image Processing*, 25(4):1626–1638, 2016.
- [12] **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.*