

IAN PAN
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EDUCATION

The Warren Alpert Medical School Brown University <i>Providence, RI</i>	Doctor of Medicine	(expected) 2020
Brown University <i>Providence, RI</i>	Master of Arts <i>Biostatistics</i>	2016
Brown University <i>Providence, RI</i>	Bachelor of Science <i>Applied Mathematics-Biology</i>	2016

RESEARCH

Artificial Intelligence Researcher <i>Department of Diagnostic Imaging, Rhode Island Hospital, Providence, RI</i> Advisor: Derek Merck, PhD, Brown University	9/2016 – Present
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➤ Develop algorithms for automated radiological image analysis, including pneumonia detection in chest radiographs; intracranial hemorrhage detection in head CT; pediatric bone age assessment in hand radiographs; and thyroid nodule malignancy prediction in ultrasound

HONORS AND AWARDS

Radiological Society of North America (RSNA) Trainee Prize in Informatics Awarded \$1,000 for scientific abstract presented at RSNA 2018: <i>Predicting Thyroid Malignancy with Efficient Convolutional Neural Networks</i> Under mentorship of Dr. Michael Beland and Dr. Derek Merck	11/2018
RSNA Pneumonia Detection Challenge: 1st place Awarded \$12,000 and 1 st place out of 1,400 international participants competing to develop the best pneumonia detection algorithm	10/2018
RSNA Pediatric Bone Age Machine Learning Challenge: 2nd place Awarded 2 nd place out of 250 international participants competing to develop the best bone age assessment algorithm	11/2017
The Milton Hamolsky Prize, Program in Liberal Medication Education (PLME), Brown University Awarded to the PLME student who has best utilized the potentialities inherent in the PLME to pursue scholarly interests in the natural sciences which will enhance and enrich the student's career as a physician	5/2016

EMPLOYMENT

Consultant <i>MD.ai, New York, NY</i>	12/2018 – Present
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➤ Develop AI algorithms to solve problems in medical imaging for various clients

Data Science Fellow

The Eric & Wendy Schmidt Data Science for Social Good Fellowship, Chicago, IL

5/2015 – 8/2015

- Developed a machine learning pipeline for the Illinois Department of Human Services to predict the likelihood of a woman having an adverse birth to improve risk assessment for intervention eligibility

PROFESSIONAL ASSOCIATIONS

Radiological Society of North America
Society of Imaging Informatics in Medicine
Society of Abdominal Radiology

SKILLS AND INTERESTS

Programming in Python; deep learning; Kaggle data science competitions
Table tennis; New York Times crossword enthusiast

BIBLIOGRAPHY

Peer-Reviewed Publications

Pan I, Cadrin-Chênevert A, Cheng PM. (2019). Tackling the Radiological Society of North America Pneumonia Detection Challenge. *American Journal of Roentgenology*. doi: 10.2214/AJR.19.21512

Pan I, Agarwal S, Merck D. (2019). Generalizable Inter-Institutional Classification of Abnormal Chest Radiographs Using Efficient Convolutional Neural Networks. *Journal of Digital Imaging*. doi: 10.1007/s10278-019-00180-9

Halabi SS, Prevedello LM, Kalpathy-Cramer J, Mamonov AB, Bilbily A, Cicero M, **Pan I**, et al. (2018). The RSNA Pediatric Bone Age Machine Learning Challenge. *Radiology*. doi: 10.1148/radiol.2018180736

Pan I, Nolan LB, Brown RR, Khan R, van der Boor P, Harris DG, Ghani R. (2017). Machine Learning for Social Services: A Study of Prenatal Case Management. *American Journal of Public Health*. 107(6): 938-944. doi: 10.2105/AJPH.2017.303711

Scientific Presentations

Pan I, Mutasa S, Merck D, Ruzal-Shapiro CB, Ayyala RS, Swenson DW. (2019). Rethinking Greulich & Pyle: Deep Learning Models for Pediatric Bone Age Assessment. Accepted for presentation at the Radiological Society of North America Annual Meeting, Chicago, IL, December.

Pan I, Zhang Y, Movson JS, Langlotz CP, Merck D. (2019). Effectiveness of Multi-Class Pretraining to Improve Performance of Deep Learning Models for Radiography. Accepted for presentation at the Radiological Society of North America Annual Meeting, Chicago, IL, December.

Kase D, Landi Junior O, Arcuri M, Kitamura F, **Pan I**, Tenenholtz N, Shih GL, Chen L, Stein A, Abdala N. (2019). Defacing Neuroimages. Accepted for presentation at the Radiological Society of North America Annual Meeting, Chicago, IL, December.

Velloni FG, **Pan I**, Dalla Pria HR, Yoshitani JC, Romano RF, Landi Junior O, Kitamura F, Abdala N. (2019). Visceral Fat Quantification in Abdominal Computed Tomography Using Deep Learning. Accepted for presentation at the Radiological Society of North America Annual Meeting, Chicago, IL, December.

Filice RW, Chase C, Pan I, Stein A, Coombs LP, Shih GL. (2019). Medical Federated Deep Learning (MedFDL) for Automatic Body Part Labeling of CT Scout Images. Accepted for presentation at the Radiological Society of North America Annual Meeting, Chicago, IL, December.

Leary OP, Harder TJ, **Pan I**, Merck D, Wright DW, Merck LH. (2019). Volume of Subdural and Epidural Hematoma Measured by Computer-Assisted Estimation is More Predictive of Patient Mortality and Functional Disability than ABC/2. Presented at the 37th Annual National Neurotrauma Symposium, Pittsburgh, PA, July.

Pan I, Merck D, Beland MD. (2019). Artificial Intelligence for Abdominal Ultrasound: A Robust New Tool to Predict Fatty Liver. Presented at the Society of Abdominal Radiology Annual Meeting, Orlando, FL, March 17.

Keshavamurthy KN, Elnajjar P, El-Rowmeim A, Shih H, **Pan I**, Do KG, Juluru K. (2019). Application of Deep Learning Techniques to Characterization of 3D Radiological Datasets: A Pilot Study for Detection of Intravenous Contrast in Breast MRI. Presented at SPIE Medical Imaging, San Diego, CA, February 18.

Pan I, Leary O, Jung S, Keshavamurthy KN, Allen JW, Wright DW, Merck LH, Merck D. (2018). Deep Learning for Automatic Detection and Segmentation of Epidural and Subdural Hematomas in Head CT. Presented at the Radiological Society of North America Annual Meeting, Chicago, IL, November 27.

Zhang Y, **Pan I**, Merck D, Movson JS, Stib MT, Manning C, Langlotz CP. (2018). Deep Learning for the Automatic Detection of Urgent Radiology Findings from Free-Text Radiology Reports. Presented at the Radiological Society of North America Annual Meeting, Chicago, IL, November 27.

Pan I, Stib MT, Middleton WD, Merck D, Beland MD. (2018). Predicting Thyroid Nodule Malignancy with Efficient Convolutional Neural Networks. Presented at the Radiological Society of North America Annual Meeting, Chicago, IL, November 25.

Pan I, Chu AJ, Wang Y, Merck D, Lourenco A. (2018). Predicting Breast Nodule Malignancy with Efficient Convolutional Neural Networks. Presented at the Society for Imaging Informatics in Medicine Conference on Machine Intelligence in Medical Imaging, San Francisco, CA, September 9.

Pan I, Merck D. (2018). MochiNets: Efficient Convolutional Neural Networks for Binary Classification of Chest Radiographs. Presented at the Society for Imaging Informatics in Medicine Annual Meeting, National Harbor, MD, June 1.

Invited Presentations

Pan I, Cadrin-Chênevert A. (2018). RSNA Pneumonia Detection Challenge: 1st Place Solution. Presented at the Radiological Society of North America Machine Learning Showcase, Chicago, IL, November 26.

Pan I. (2017). Patch-Based ResNet50 Ensemble for Pediatric Bone Age Assessment: 2nd Place Solution. Presented at the Radiological Society of North America Machine Learning Showcase, Chicago, IL, November 27.