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Jiao Wang, Ph.D.

Technology Specialist, Patent Agent
San Diego
858 678 4390
wang@fr.com

Overview

Jiao Wang, Ph.D., focuses her practice on drafting and prosecuting patent applications directed to electrical engineering and computer-related technologies. Jiao possesses a unique combination of technical expertise in machine learning, artificial intelligence, signal processing, image processing, and computer software technology.

Prior to joining Fish & Richardson, Jiao worked as an individual contributor, a team member, and a manager in industries ranging from large companies to small startups. While working at GE Global Research Center, she conducted in-depth research in the areas of medical imaging systems, statistical image reconstruction, and data-intensive image processing. In one startup, Jiao was a managing research scientist, responsible for developing deep learning-based computer vision solutions to medical image analysis and diagnosis problems. While working at another previous role, Jiao was a lead software engineer, responsible for developing and implementing machine-learning-based financial technology for digital identity verification and mobile check deposit.

Jiao also has previous experience as a research fellow in the department of electrical engineering at University of Notre Dame, supported by GE Healthcare and its co-op programs, where she performed interdisciplinary research in the areas of electrical engineering, biomedical engineering, and computer science. During her doctorate study, Jiao invented and developed an advanced Markov random field regularization algorithm for computed tomography image reconstruction. The advanced Markov random field regularization algorithm is capable of flexible spectral emphasis and improving spatial resolution in reconstructed CT images. Jiao also developed an adapted non-convex optimization technique for efficient, reliable convergence. Jiao holds about 20 publications in refereed journals and conferences and is a named inventor in three U.S. patents. She is currently a J.D. candidate at University of San Diego School of Law.

Jiao has successfully argued during a Patent Trial and Appeal Board oral hearing for an appeal involving complex machine learning technology using a novel neural network, resulting in the Board reversing the examiner and allowing the patent application.

In her free time, Jiao enjoys practicing yoga and hiking with her husband and children.

Patents

U.S. Patent 10,140,544 Enhanced convolutional neural network for image segmentation
U.S. Patent 8,416,914 Systems and method of iterative image reconstruction for computed tomography
U.S. Patent 10,304,193 Image segmentation and object detection using fully convolutional neural network

Additional insights

Publications

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- Y. Wang, B. Zheng, D. Gao, J. Wang, "Fully Convolutional Neural Networks for Prostate Segmentation and Cancer Detection Using Multi-Parametric Magnetic Resonance Images: An Initial Investigation," International Conference on Pattern Recognition (ICPR), August 2018
- T. Zhao, D. Gao, J. Wang, Z. Yin, "Lung Segmentation in CT Images Using a Fully Convolutional Neural Network with Multi-Instance and Conditional Adversary Loss," IEEE International Symposium on Biomedical Imaging (ISBI), April 2018
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- J. Wang, Y. Long, L. Fu, X. Rui, and B. De Man, "Sinogram Rebinning and Frequency Boosting for High Resolution Iterative CT Reconstruction with Focal Spot Wobbling," Proceedings of SPIE Medical Imaging, March 2014
- J. Wang, P. Fitzgerald, H. Gao, Y. Jin, G. Wang, and B. De Man, "Rotating and semi-stationary multi-beamline architecture study for cardiac CT imaging." Proceedings of SPIE Medical Imaging, March 2014
- P. FitzGerald, J Bennett, J Carr, PM Edic, D Entrikin, H Gao, M Iatrou, Y Jin, B Liu, G Wang, J Wang, "Cardiac CT: A system architecture study," Journal of X-ray Science and Technology 24.1, pp. 43-65, March 2016
- J. Wang, K. Sauer, J.-B. Thibault, Z. Yu, and C. Bouman, "Prediction Coefficient Estimation in Markov Random Fields for iterative X-ray CT reconstruction," Proceedings of SPIE Medical Imaging, February 2012
- L. Fu, J. Wang, X. Rui, J.-B. Thibault, and B. De Man, "Modeling and Estimation of Detector Response and Focal Spot Profile for High-Resolution Iterative CT Reconstruction," Proceedings of IEEE Nuclear Science Symposium and Medical Imaging Conference, November 2013, Seoul, Korea
- H. Gao, P. Fitzgerald, Y. Jin, J. Wang, P. Edic, and B. De Man, "Evaluation of Geometric Irradiation Efficiency for CT System Architecture," RSNA 99th Scientific Assembly and Annual Meeting, December 2013
- P. Fitzgerald, J. Bennett, J. Carr, P. Edic, D. Entrikin, H. Gao, M. Iatrou, Y. Jin, B. Liu, G. Wang, J. Wang, Z. Yin, H. Yu, K. Zeng, and B. De Man, "Selecting a Cardiac-Specific CT system Architecture," AAPM 55th Annual Meeting & Exhibition, August 2013
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Services

Patent
Patent Prosecution

Industries

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Software & Internet
Consumer Electronics
Artificial Intelligence
Financial, Business & FinTech Services
Transportation, Aerospace & Defense
Manufacturing
Autonomous Vehicles

Admissions

U.S. Patent and Trademark Office (2019)

Languages

English
Mandarin Chinese

Education

Ph.D., Electrical Engineering, University of Notre Dame (2012)
M.S., Electrical Engineering, University of Notre Dame (2010)
M.S., Electrical Engineering, Communication University of China (2007)
B.S., Telecommunications, Huazhong University of Science and Technology (2005)
B.S., Computer Science, Huazhong University of Science and Technology (2005)