

# Jiacheng (Jacky) Wang

[jiacheng.wang.1@vanderbilt.edu](mailto:jiacheng.wang.1@vanderbilt.edu) | [Homepage](#) | 347-260-4346

## EDUCATION

---

### VANDERBILT UNIVERSITY

*Doctor of Philosophy Candidate in Computer Science*

Nashville, TN

Aug. 2021 – Now

- Harold Stirling University Graduate Fellowship with **GPA:3.9**

### NEW YORK UNIVERSITY

*Master of Science in EE/Data Science, Medical and Machine Learning Track*

New York, NY

Aug. 2018 – May 2020

- Grad School Merit Scholarship with **GPA:3.8**

### UNIVERSITY OF ILLINOIS AT CHICAGO

*Bachelor of Science in ECE*

Chicago, IL

Aug. 2017 – May 2018

- Fully funded by **China Scholarship Council**
- Graduated in *Honor College*, **Dean's List** two semesters with **GPA:4.0**

### NORTHEASTERN UNIVERSITY

*Bachelor of Science in EECS*

Shenyang, China

Aug. 2014 – May 2018

- Outstanding Graduates, Top 3%, scholarship every semester with **GPA:3.8**

## PUBLICATIONS

---

### Clinical & Medical Publications

1. H. F. Kazimuddin, **J. Wang**, ..., I. Oguz, F. Bagnato.  
*Paramagnetic Rim Lesions and Their Relationship With Neurodegeneration and Clinical Disability at the Time of Multiple Sclerosis Diagnosis.*  
**ACTRIMS 2024.**
2. Z.Rohm, C.Koch, H. F. Kazimuddin, **J. Wang**, ..., I. Oguz, F. Bagnato.  
*Longitudinal Characterization of Paramagnetic Rim Lesions in Early Multiple Sclerosis.*  
**ACTRIMS 2024.**
3. C.Koch, Z.Rohm, K.Barter, H. F. Kazimuddin, **J. Wang**, ..., I. Oguz, F. Bagnato.  
*Paramagnetic Rim Lesions and Their Relationship With Neurodegeneration and Clinical Disability at the Time of Multiple Sclerosis Diagnosis.*  
**ACTRIMS 2024.**
4. B. Hernandez, H. F. Kazimuddin, **J. Wang**, ..., I. Oguz, F. Bagnato.  
*Central Vein Sign and its Role in Predicting Lesion Evolution in Early Multiple Sclerosis.*  
**ACTRIMS 2023.**
5. Y. Ding, **J. Wang**, H. Rusinek, J. Babb.  
*In vivo imaging of LC-NE Integrity: Mechanism for racial/ethnic disparity in preclinical AD.*  
**The Journal of the Alzheimer's Association, Alzheimer's & Dementia 2021.**
6. Y. Duan, **J. Wang**, ..., T. J. Vaughan.  
*A Continuously Adjustable 32-Ch Head Coil Array for MRI at 3T.*  
**International Society for Magnetic Resonance in Medicine (ISMRM) 2021**
7. Y. Ding, **J. Wang**, H. Rusinek.  
*PET Imaging of NET Availability in Humans using [<sup>11</sup>C]MRB: Age, gender and Ethnicity effects.*  
**Alzheimer's Association International Conference 2020**
8. **J. Wang**, M. MacLean, ..., Y. Ding.  
*Study of ALS and RAGE Using [<sup>11</sup>C] PBR28: Mechanisms and Therapeutic Opportunities.*  
**Journal of Nuclear Medicine 2020.**
9. **J. Wang**, M. MacLean, ..., Y. Ding.  
*Age, Gender, and Ethnicity Effects on NET Availability in Humans using [<sup>11</sup>C]MRB.*  
**Journal of Nuclear Medicine 2020.**

### Deep Learning & Machine Learning

1. **J. Wang**, H. Li, D. Hu, TK. Tao, I.Oguz.  
*Retinal IPA: Iterative KeyPoints Alignment for Multimodal Retinal Imaging*  
**In process: MICCA workshop 2024.**

2. H. Li, H. Liu, D. Hu, **J. Wang**, I. Oguz.  
*PRISM: A Promptable and Robust Interactive Segmentation Model with Visual Prompts.*  
*MICCAI (early accept) 2024.*
3. **J. Wang**, H. Li, D. Hu, TK. Tao, I. Oguz.  
*Novel OCT mosaicking pipeline with Feature-and Pixel-based registration.*  
*IEEE 21st International Symposium on Biomedical Imaging (ISBI) Oral 2024.* [ArXiv]
4. H. Li, H. Liu, D. Hu, **J. Wang**, I. Oguz.  
*Assessing Test-time Variability for Interactive 3D Medical Image Segmentation with Diverse Point Prompts.*  
*IEEE 21st International Symposium on Biomedical Imaging (ISBI) 2024.*
5. H. Li, H. Liu, D. Hu, **J. Wang**, I. Oguz.  
*Promise: Prompt-driven 3D Medical Image Segmentation Using Pretrained Image Foundation Models.*  
*IEEE 21st International Symposium on Biomedical Imaging (ISBI) Oral 2024.*
6. R. Deng, Y. Li, P. Li, **J. Wang**, ..., Y. Huo  
*Democratizing Pathological Image Segmentation with Lay Annotators via Molecular-empowered Learning.*  
*MICCAI 2023.*
7. D. Hu, ..., **J. Wang**, I. Oguz  
*MAP: Domain Generalization via Meta-Learning on Anatomy-Consistent Pseudo-Modalities.*  
*MICCAI 2023.*
8. **J. Wang**, K. E. Larson, I. Oguz.  
*Self-Supervised CSF Inpainting with Synthetic Atrophy for Improved Accuracy Validation of Cortical Surface Analyses.*  
*Medical Imaging with Deep Learning (MIDL) 2023.* [ArXiv]
9. X. Yao, ..., **J. Wang**, ..., I. Oguz.  
*Novel application of the attention mechanism on medical image harmonization.*  
*International Society for Optics and Photonics - Medical Imaging (SPIE-MI) 2023.*
10. D. Hu, ..., **J. Wang**, I. Oguz.  
*VesselMorph: Domain-Generalized Retinal Vessel Segmentation via Shape-Aware Representation.*  
*International Society for Optics and Photonics - Medical Imaging (SPIE-MI) 2023.*
11. **J. Wang**, H. Li, H. Liu, ..., I. Oguz.  
*SSL<sup>2</sup>: Self-Supervised Learning meets Semi-Supervised Learning: Multiple Sclerosis Segmentation in 7T-MRI from large-scale 3T-MRI.*  
*International Society for Optics and Photonics - Medical Imaging (SPIE-MI) 2023.* [ArXiv]
12. H. Li, H. Liu, D. Hu, **J. Wang**, ..., I. Oguz.  
*Self-Supervised Test-Time Adaptation for Medical Image Segmentation.*  
*Machine Learning in Clinical Neuroimaging (MLCN), MICCAI Workshop 2022.*
13. H. Liu, Y. Fan, H. Li, **J. Wang**, ..., I. Oguz.  
*ModDrop++: A Dynamic Filter Network with Intra-subject Co-training for Multiple Sclerosis Lesion Segmentation with Missing Modalities.*  
*MICCAI 2022.*
14. H. Li, D. Hu, H. Liu, **J. Wang**, I. Oguz.  
*Cats: Complementary CNN and Transformer Encoders for Segmentation.*  
*IEEE 19th International Symposium on Biomedical Imaging (ISBI) 2022.*
15. **J. Wang**, W. Li.  
*Atrial Fibrillation Detection and ECG Classification based on CNN-BiLSTM*  
*preprint 2020.* Invited Publication at Elsevier **Journal on Software Impacts** [ArXiv]
16. **J. Wang**, Y. Ma, S. Gao.  
*Self-semi-supervised Learning to Learn from Noisy Labeled Data*  
*preprint 2020.* [ArXiv]
17. **J. Wang**, Y. Fan, D. Jiang, S. Li.  
*Meta-Learning for Natural Language Understanding under Continual Learning Framework*  
*preprint 2020.* [ArXiv]

## Network Analysis

1. M. I.-C. Wang, **J. Wang**, H. Wen, H. J. Chao.  
*Roadrunner: Autonomous Intersection Management with Dynamic Lane Assignment.*  
*The 23<sup>rd</sup> IEEE International Conference on Intelligent Transportation Systems 2020.*

2. X. Song, C. Jia, **J. Wang**,..., W. Lei.  
*Cache-Enabled Device to Device Networks with Aloha Based Multimedia Delivery*  
**MOBIMEDIA '17: Proceedings of the 10<sup>th</sup> International Conference on Mobile Multimedia Communications 2017.**

## Patent

1. C. Fu, **J. Wang**  
*Video Chaos Encryption under Streaming Media*  
**CN107633474A 2018.**

## EXPERIENCE

---

- Research Lead** Dec. 2021 – Present  
*MedICL Lab, Vanderbilt University* Nashville, TN
- **Multiple Sclerosis Research:** Spearheaded in-depth research focusing on high-field (7 Tesla) MRI technologies to enhance the monitoring of Multiple Sclerosis (MS) progression. Key areas of focus included the development of parametric rim lesion classification algorithms, analysis of slowly expanding lesions, and the application of advanced deep learning methodologies to improve MS diagnosis and treatment strategies.
  - **Retinal Imaging Innovations:** Led pioneering research on Optical Coherence Tomography (OCT) imaging, with a concentration on enhancing image quality and diagnostic accuracy through multi-modality image mosaicking, precise image registration techniques, and effective noise reduction strategies.
- Graduate Student Researcher Lead** Dec. 2018 – Present  
*Langone School of Medicine, New York University* New York, NY
- Innovated in the design and execution of novel co-registration methods for PET, CT, MR, and atlas images, alongside advanced segmentation techniques for human and rodent brain structures, leveraging state-of-the-art deep learning approaches.
- Research Intern** Jun. 2018 – Jan. 2020  
*Columbia University & New York State Psychiatric Institute* New York, NY
- Led the design of General Machine 3T/7T Commercial MRI Radiofrequency (RF) coils, enhancing the efficacy of pre-clinical research applications.
- Graduate Student Assistant** Jan. 2019 – Aug. 2021  
*High-Speed Network Lab, New York University* Brooklyn, NY
- Pioneered the application of mathematical models, Deep Neural Network abstractions, and Reinforcement Learning in the development of traffic-light-free Autonomous Intersection Managers (AIMs).
- Electrical Technical Lead** Sep. 2018 – Nov. 2019  
*Robotics Design Team, New York University* Brooklyn, NY
- Competed in the 2019 NASA Lunabotics Competition, demonstrating exceptional skill in robotic autonomous operation within a simulated Martian environment, utilizing dynamic, sensor-driven decision-making.

## AWARDS, TEACHING AND SERVICE

---

### Awards :

- **ACTRIMS** Young Scientist Summit Travel Award 24'
- **IEEE ISBI** Student Travel Grant 24'
- **Vanderbilt VADD** Travel Grant 24'

### Reviews :

- **CV/ML/DL:** *CVPR 24, ICML 24*
- **Medical:** *MELBA* (The Journal of Machine Learning for Biomedical Imaging), *MICCAI 22, 23, 24, MIDL 23, 24, ISBI 23, 24*
- **Others:** *IEEE ITSC 20*

### Teachings:

1. **Lecturer** for *CS. 8395 Open Source Programming for Medical Image Analysis*
  - Graduated level Course to introduce Tools & libraries for Medical imaging analysis
  - Designed lectures to introduce the implementation of PyTorch Libraries and pre-processing procedures in MRI analysis.
  - Designed lectures to introduce C++ ITK implementation of medical image processing.

2. **Teaching Assistant** for *CS. 8395 Open Source Programming for Medical Image Analysis*
  - Designed homework questions, hold Office hour, grade homework, format project topic and midterm exam (3D Slicer, C++, ITK, VTK, PyTorch, Python)
3. **Teaching Assistant** for *CS.3262/DS. 3205 Applied Machine Learning*
  - Graduated level course to introduce both theoretic and implementation of Machine Learning and Deep Learning
  - Designed homework questions, hold Office hour, grade homework, format project topic and midterm exam (PyTorch, Python)
4. **Teaching Assistant** for *BMSC-GA.4426/ECE.-GA 6813/BE.-GA 6203 Medical Imaging*
  - Graduated level course co-opened by NYU School of Medicine and NYU School of Engineering in *Fall 2019*
  - Hold Office hour, grade homework, format project topic and midterm exam (MATLAB, Python)
5. **Head Teaching Assistant** for *ECE.-GA 6143/CS.-GA 6923 Machine Learning*
  - Graduated level course opened by NYU school of Engineering in *Spring 2020*
  - Designed homework for 115 students, hold office hour and grade midterm/ final exam. (Python, PyTorch)

## TECHNICAL SKILLS

---

**Languages:** Python, Java, C++, SQL, Swift, JavaScript, HTML/CSS, C

**Methods:** Machine learning (sklearn, pandas), Deep learning (PyTorch, TF, transformers, diffusion), Data visualization (D3), Medical (MONAI, ANTs, ITK, Slicer)