JIACHENG WANG

jiacheng.wang.1@vanderbilt.edu | Homepage| 347-260-4346

Education

VANDERBILT UNIVERSITY — Nashville, TN
Doctor of Philosophy Candidate in Computer Science — *Aug. 2021 – Now*
- Grad Fellowship with **GPA:3.9**

NEW YORK UNIVERSITY — New York, NY
Master of Science in EE/Data Science, Medical and Machine Learning Track — *Aug. 2018 – May 2020*
- Grad School Scholarship with **GPA:3.8**

UNIVERSITY OF ILLINOIS AT CHICAGO — Chicago, IL
Bachelor of Science in ECE — *Aug. 2016 – May 2018*
- Fully funded by **China Scholarship Council**
- Graduated in *Honor College*, **Dean's List** two semesters with **GPA:4.0**

NORTHEASTERN UNIVERSITY — Shenyang, China
Bachelor of Science in EECS — *Aug. 2014 – May 2018*
- Outstanding Graduates, Top 3%, scholarship every semester with **GPA:3.8**

Publications

Clinical & Medical Publications

1. B. Hernandez, H. F. Kazimuddin, **J. Wang**, ..., I. Oguz, F. Bagnato.
Using Phase Patterns to Differentiate Lesion Severity in Multiple Sclerosis.
***ACTRIMS Forum** 2023.*
2. 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.*
3. 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*
4. Y. Ding, **J. Wang**, H. Rusinek.
PET Imaging of NET Availability in Humans using $[^{11}C]$MRB: Age, gender and Ethnicity effects.
***Alzheimer's Association International Conference** 2020*
5. **J. Wang**, M. MacLean, ..., Y. Ding.
Study of ALS and RAGE Using $[^{11}C]$ PBR28: Mechanisms and Therapeutic Opportunities.
***Journal of Nuclear Medicine** 2020.*
6. **J. Wang**, M. MacLean, ..., Y. Ding.
Age, Gender, and Ethnicity Effects on NET Availability in Humans using $[^{11}C]$MRB.
***Journal of Nuclear Medicine** 2020.*

Deep Learning & Machine Learning

1. R. Deng, Y. Li, P. Li, **J. Wang**, ..., Y. Huo
Democratizing Pathological Image Segmentation with Lay Annotators via Molecular-empowered Learning.
***MICCAI** 2023.*
2. **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*]
3. **J. Wang**, H. Li, H. Liu, ..., I. Oguz.
SSL^2: 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*]
4. 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.*

5. 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.*
6. 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.*
7. **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*]
8. **J. Wang**, Y. Ma, S. Gao.
   Self-semi-supervised Learning to Learn from NoisyLabeled Data
   ***preprint** 2020.* [*ArXiv*]
9. **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 23rd 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 10th International Conference on Mobile Multimedia Communications** 2017.*

Patent

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

Experience

Research Assistant Dec. 2021 – Present
MedICL Lab, Vanderbilt University *Nashville, TN*

- Investigated semi-supervised, self-supervised methods in Multiple Sclerosis Segmentation using 7T MRI
- Investigated the combination of CNN and Transformer in medical imaging area
- Investigated the domain adaptation problem defined in medical imaging segmentation

Graduate Student Researcher Dec. 2018 – Present
Langone School of Medicine, New York University *New York, NY*

- Designed and implemented new methods for co-registration of PET, CT, MR and atlas images, and segmentation of human and rodent brain structure with a potential traditional approach using SOTA DL methodology
- Conducted statistical analysis on the correlation of study outcome obtained from behavioral measurement and PET/CT or PET/MR neuroimaging modalities
- Broadly involved in ***NIH*** funded grant projects, both pre-clinical and clinical studies; e.g., PET/CT and PET/MR imaging analysis of ALS, osteoarthritis, low back pain, brown fat in obesity.

Graduate Student Assistant Jan. 2019 – Aug. 2021
High-Speed Network Lab, New York University *Brooklyn, NY*

- Explored mathematical and Deep Neural Network abstraction methods and Reinforcement Learning control to create traffic-light-free Autonomous Intersections Managers (AIMs)
- Presented at *IEEE ITSC* conference for our work in design of Autonomous traffic intersection management
- Published 1 conference paper. Submitted 2 under-review journal paper and ***NSF*** funded grant proposal

Research Intern Jun. 2018 – Jan. 2020
Columbia University & New York State Psychiatric Institute *New York, NY*

- Designed General Machine 3T/7T Commercial MRI Radiofrequency (RF) coils for pre-clinical research

- Published an abstract *A Continuously Adjustable 32-Ch Head Coil Array for MRI at 3T* to **ISMRM 2021**

Electrical Technical Lead Sep. 2018 – Nov. 2019
Robotics Design Team, New York University *Brooklyn, NY*

- Attended 2019 NASA Lunabotics Competition which require robotic autonomous operation using dynamic, sensor driven decision making in a simulated Martian environment

Teaching and Service

Review: Revieddwer for *IEEE ITSC 2020*, *MICCAI MLCN 2022 Workshop*, *MIDL 2023*
Teachings:

1. **Guest Lecturer** for *CS. 8395* ***Open Source Programming for Medical Image Analysis***
   - Graduated level Course to introduce Tools & libraries for Medical imaging analysis
   - Prepare 3 lectures to introduce the implementation of PyTorch Libraries and pre-processing procedures in MRI analysis.
2. **Teaching Assistant** for *CS. 8395* ***Open Source Programming for Medical Image Analysis***
   - Create 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
   - Create 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
Methods: Machine learning (sklearn, pandas), Deep learning (PyTorch, TF, transformers), Data visualization (D3)
Libraries: pandas, NumPy, Matplotlib, Flask, Spark