Jinge Wang

+1 (304)376-8558 | jinge0829@gmail.com | JingeW.github.io | linkedin.com/in/jingew | Jinge Wang

Education

West Virginia University *Morgantown, WV, U.S.*

Ph.D. in Computer Science *Aug 2016 - May 2023*

- Specialized in artificial intelligence, data analysis, and signal processing.
- Completed advanced coursework in algorithms, pattern recognition, data mining, and neural networks.

West Virginia University *Morgantown, WV, U.S.*

Master of Science in Statistics *Aug 2013 - Dec 2015*

- Gained expertise in statistical methodologies and data analysis, with a focus on SAS programming and regression modeling.
- Completed courses in experimental design, categorical data analysis, and applied regression.

Anhui University of Finance and Economics *Anhui, China*

Bachelor of Management *Sep 2007 - Jul 2011*

- Acquired foundational knowledge in business and management principles.

Experience

Polygon Health Analytics *Remote*

Data Scientist *10/2024 - Present*

- ***Keywords:*** Python, LLM, AI, ML, AWS, RWD
- Developed AI-driven solutions leveraging real-world data (RWD) to enhance healthcare outcomes and clinical research.
- Collaborated with cross-functional teams to implement machine learning models, improving operational efficiency in healthcare systems.

West Virginia University *Morgantown, WV*

Postdoctoral Fellow *10/2023 - 09/2024*

- ***Keywords:*** Python, R, ChatGPT, LLM, AI
- Advanced AI integration with bioinformatics, focusing on multimodal large language models for image analysis in computational biology.
- Developed novel algorithms to improve the accuracy of AI-driven biological data interpretation.

HaoHan Technologies, LLC *Clarksville, MD*

Data Analyst Intern *05/2023 – 10/2023*

- ***Keywords:*** SAS, R, SQL, Data Modeling, Regression
- Analyzed county-level Medicaid data to provide actionable insights for public mental health services.
- Built automated workflows and generated statistical reports to support policy decision-making.

West Virginia University *Morgantown, WV*

Graduate Research Assistant *01/2018 - 05/2023*

- ***Keywords:*** Python, PyTorch, TensorFlow, Matlab, Scikit-learn, Linux, Git
- Developed deep learning models for image analysis, neural network interpretability, and neuroscience research.
- Collaborated on interdisciplinary projects in agriculture and medicine, delivering data-driven solutions.

Projects

Dermoscopic Images Classified by GPT-4v *2024 - 2024*

- ***Keywords:*** LLM, GPT-4v, RAG, Few-Shot Learning
- Developed an algorithm using similarity-based reference selection to improve melanoma diagnosis accuracy by 25%.
- *"Boosting GPT-4V's Accuracy in Dermoscopic Classification with Few-Shot Learning." (**Wang** et al. 2024)*

Scientific Figures Interpreted by Chatbots *2023 - 2024*

- ***Keywords:*** LLM, Chatbots, Prompt Engineering
- Evaluated GPT-4V's ability to interpret scientific figures in cancer studies, establishing quantitative performance metrics.
- *"Scientific figures interpreted by ChatGPT: strengths in plot recognition and limits in color perception." (**Wang** et al. 2024)*

Critical Period Analysis *2022 - 2023*

- ***Keywords:*** Facial Detection, Grad-CAM, Knowledge Distillation
- Discovered critical periods in deep neural networks for face recognition, with methods to recover missed learning phases.
- *"A critical period for developing face recognition." (**Wang** et al. 2024)*

Face Identity Coding *2021 - 2022*

- ***Keywords:*** ANOVA, SVM, GAN, Neural Network Manipulation
- Simulated primate visual pathways with DNNs, replicating neural coding strategies used in face recognition tasks.
- *"Face identity coding in the deep neural network and primate brain." (**Wang** et al. 2022)*

FMRI Signal Reconstruction *2020 - 2021*

- ***Keywords:*** FMRI, Brain Signal Reconstruction, VAE-GAN
- Reconstructed visual stimuli from FMRI signals using VAE-GAN, demonstrating a prototype for neural decoding.

Feature-based Encoding of Face Identity *2020 - 2021*

- ***Keywords:*** Face Encoding, Feature Extraction, VGG-Face, t-SNE
- Revealed novel face encoding strategies in the human brain using DNN-extracted features.
- *"Feature-based encoding of face identity by single neurons in the human amygdala and hippocampus" (Cao,* ***Wang*** *et al. 2024)*

Weed Detection *2019 - 2020*

- ***Keywords:*** Image Processing, CNN, Matlab GUI
- Developed a semi-supervised weed detection tool with PyTorch and image processing techniques.
- *"Morning Glory Flower Detection in Aerial Images Using Semi-Supervised Segmentation." (Valicharla,* ***Wang*** *et al. 2024)*

Publications

- **J Wang**; T C Yu; M S Kolodney; P L Perrotta; G Hu. "Adapting ChatGPT for Color Blindness in Medical Education." *Ann Biomed Eng.* (2024).
- **J Wang**; Z Zinn; D Xu; G Hu. "Limitations and risks of custom GPTs in dermatology. Comment on 'ReconGPT: A novel artificial intelligence tool and its potential use in post-Mohs reconstructive decision-making'." *JAAD.* (2024).
- **J Wang**; G Hu. "Boosting GPT-4V's accuracy in dermoscopic classification with few-shot learning. Comment on 'Can ChatGPT vision diagnose melanoma? An exploratory diagnostic accuracy study'." *JAAD.* (2024).
- **J Wang**; Z Cheng; Q Yao; L Liu; D Xu; G Hu. "Bioinformatics and Biomedical Informatics with ChatGPT: Year One Review." *QB.* (2024).
- **J Wang**; Q Ye; L Liu; N L Guo; G Hu. "Scientific Figures Interpreted by ChatGPT: Strengths in Plot Recognition and Limits in Color Perception." *NPJ Precis. Oncol.* (2024).
- S K Valicharla; **J Wang**; X Li; S Gururajan; R Karimzadeh; Y Park. "Morning Glory Flower Detection in Aerial Images Using Semi-Supervised Segmentation with Gaussian Mixture Models." *Agric. Eng.* (2024).
- **J Wang**; R Cao; P N Chakravarthula; X Li; S Wang. "A critical period for developing face recognition." *Patterns.* (2024).
- R Cao; **J Wang**; P Brunner; J T Willie; X Li; U Rutishauser; N J Brandmeir; S Wang. "Neural mechanisms of face familiarity and learning in the human amygdala and hippocampus." *Cell Reports.* (2024).
- **J Wang**; R Cao; N J Brandmeir; X Li; S Wang. "Face identity coding in the deep neural network and primate brain." *Commun. Biol.* (2022).
- X Xu; X Xiong; **J Wang**; X Li. "Deformable kernel convolutional network for video extreme super-resolution." *ECCV Wksp.* (2020).
- R Cao; **J Wang**; C Lin; E De Falco; A Peter; H G Rey; J DiCarlo; A Todorov; U Rutishauser; X Li; S Wang. "Feature-based encoding of face identity by single neurons in the human amygdala and hippocampus." *BioRxiv.* (2020).

Skills

Programming Python (Pandas, PyTorch, NumPy, Scikit-learn. etc.), Matlab, R, SAS

Miscellaneous LLM, ChatGPT, Linux, LaTeX, Microsoft Office, Git, AWS

Achievements

- Oral and poster presentations at TRCCC 2024
- ECCV 2020 AIM: Advances in Image Manipulation workshop and challenges Runner-Up Award
- SAS Certified Base Programmer for SAS 9
- SAS Certified Advanced Programmer for SAS 9
- **Certificate**: Prompt Engineering for ChatGPT - Vanderbilt University
- **Certificate**: Python Essentials for MLOps - Duke University
- **Certificate**: Supervised Machine Learning: Regression and Classification - DeepLearning.AI, Stanford University
- **Certificate**: Introduction to Large Language Models - Google Cloud
- **Certificate**: Introduction to Healthcare - Stanford University