Justin L. Wang

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EDUCATION

University of Illinois at Urbana Champaign, IL
Bachelor of Science in Computer Science, Mathematics & Statistics
Expected: May, 2022 GPA: 3.85/4.00

TECHNICAL SKILLS

Languages : Python, Java, MATLAB, C++
Tools/Frameworks : PyTorch, Tensorflow
Database : MSSQL

EXPERIENCE

SimBioSys Inc. **Jan. 2020 - Current**
Deep Learning Engineer Intern Urbana, Illinois, USA

- Constructed deep convolutional neural networks for segmentation as input to physical computational biology models for tumor growth forecasting
- Set up efficient data streaming in Big Data environments for training neural networks
- Modified existing CNN architectures with categorical data injection

University of Illinois at Urbana Champaign **Nov. 2019 - Current**
Department of Atmospheric Sciences Urbana, Illinois, USA
Machine Learning Researcher

- Time series forecasting of coarse-grained aerosol models using fast and efficient neural networks
- Mitigating error propagation through a variety of methods including multi-step temporal boosting, scheduled sampling, and physical constraints
- Investigating temporal and spatial attention mechanisms on multivariate forecasting
- Working with Bluewaters Supercomputer and related supercomputing clusters

Tsinghua University **June 2019 - Aug. 2019**
Tsinghua Laboratory of Brain & Intelligence Haidian, Beijing, China
Machine Learning Researcher

- Researched brain-inspired computing and neurologic processes through unsupervised learning
- Worked on computational biology in NLP using sparse convolutional autoencoders for feature extraction (PyTorch)
- Programmed hierarchical encoding and decoding of phonemes to mimic brain decomposition of language in neuron clusters

Florida Atlantic University **June 2018 - May 2019**
Machine Learning Researcher Boca Raton, Florida, USA

- Worked with deep neural networks and machine learning, applying CNNs, LSTMs, FFNs, SVMs, and KNNs (MATLAB)
- Proposed, tested, and published an ensemble networked based on stochastic generation of CNNs and logistic weighting based on ANN architecture
- Led focused oceanography project on forecasting satellite data through statistical data analysis (PCA) and LSTM regression in the Gulf of Mexico

PUBLICATIONS

Journal Papers

Wang, J. L., Farooq, H., Ibrahim, A. K., and Zhuang, H., "Segmentation of Intracranial Hemorrhage Using Semi-Supervised Multi-Task Attention-Based U-Net," *Applied Sciences*, 2020, in review.

Ali, A. M., Zhuang, H., Ibrahim, A. K., Cherubin, L., and **Wang, J. L.**, "Wavelet-EOF-LSTM Learning and its Application to the Forecasting of the Evolution of the Loop Current and its Eddies in the Gulf of Mexico," *Ocean Modelling*, 2020, in review.

Wang, J. L., Zhuang, H., Ibrahim, A. K., Cherubin, L., and Ali, A. M., "Medium-Term Forecasting of Loop Current eddy Cameron and eddy Darwin formation in the Gulf of Mexico with a Divide-and-Conquer Machine Learning Approach," *Journal of Geophysical Research: Oceans*, 2019.

Conference Proceedings

Wang, J. L., Ibrahim, A. K., Zhuang, H., Ali, A. M., and Li, A. Y., "A Study on Automatic Detection of IDC Breast Cancer with Convolutional Neural Networks," *Proc. IEEE International Conf. on Computational Science and Computational Intelligence (CSCI)*, 2018.

Wang, J. L., Li, A. Y., Huang, M., Ibrahim, A. K., Zhuang, H., and Ali, A. M., "Classification of White Blood Cells with PatternNet-fused Ensemble of Convolutional Neural Networks (PECNN)," *Proc. IEEE International Sym. on Signal Processing and Information Technology (ISSPIT)*, 2018.

Ali, A. M., Ibrahim, A. K., Zhuang, H., and **Wang, J. L.**, "Preliminary Results of Forecasting of the Loop Current System in Gulf of Mexico Using Robust Principal Component Analysis," *Proc. IEEE International Sym. on Signal Processing and Information Technology (ISSPIT)*, 2018.

RELEVANT COURSES

• Abstract Algebra • Abstract Linear Algebra • Data Structures • Deep Learning
• Differential Equations • Linear Optimization • Probability Theory

AWARDS / MISC

2020

• Franz Hohn and J.P. Nash Scholarship Recipient
• UIUC HackIllinois Hackathon Best Novel Use of Mathematics
• UIUC Pulse Hardware Hackathon 3rd Place

2019

• UIUC PygHack Hackathon 3rd Place
• Palm Beach Post Math Pathfinder (State Scholarship)

2018

• United States of America Computing Olympiad (USACO) Platinum Division
• United States of America Mathematics Olympiad (USAMO) Qualifier