JUN ZHUANG

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EDUCATION

Doctorate of Philosophy in Computer Science, School of Science 08/2018-Expected 05/2023
Master of Science in Computer & Information Science, School of Science 08/2018-05/2021
Indiana University-Purdue University at Indianapolis (IUPUI), Indianapolis, IN
Courses: Data Mining, Numerical Optimization, Data Science, Computer Architecture, Intelligent System, etc.
GPA: 3.70/4.00

Master of Science in Computer Science, School of Engineering and Applied Sciences 09/2016-06/2018
University at Buffalo (UB), Buffalo, NY
Courses: Algorithm, Deep Learning, Computer Vision, Machine Learning, Operating Systems, Distributed Systems, etc.
GPA: 3.57/4.00

Master of Science in Finance, Saunders College of Business 09/2012-08/2013
Rochester Institute of Technology (RIT), Rochester, NY
Awards: Merit Scholarship (Covered 50% tuition fee).
GPA: 3.33/4.00

Bachelor of Engineering in Safety Engineering, School of Mechanical and Automotive Engineering 09/2007-07/2011
South China University of Technology (SCUT), Guangzhou, China
Awards: Honor Scholarship (top 10%), Excellent League Member Honor (top 5%), Merit Student Honor
GPA: 3.30/4.00

PROFESSIONAL SKILLS

Programming Languages: Python (5 yrs+), R (1 yr), C/C++ (2 yrs), Java (1 yr), MATLAB, CUDA, HTML+CSS+JavaScript;
Tools: TensorFlow with Keras, PyTorch, Linux, AWS EC2, MySQL, MongoDB, Git.
Statistics: linear & logistic regression, Bayesian inference, K-means & EM, SVM, RF, XGB, MCMC, HMM, PCA, etc.
Soft Skills: fast-paced programming, multi-tasking, critical thinking, effective communication, proactive problem solving, etc.

PROFESSIONAL EXPERIENCE

Algorithms and Advanced Analytics Intern, Roche Diabetes Care, Inc. – IN Summer 2021
- Explored reinforcement learning techniques, e.g., DQN and Actor-Critic, to control the glycemic risk; Employed auto-encoding recurrent networks to predict the insulin intake of T1D and investigated how to handle the prediction uncertainty in time-series data.

Research Intern, The University of Tennessee, Knoxville – TN Summer 2020
- Collaborated with Dr. Dali Wang to develop efficient deep learning algorithm for synthesizing 3D live microscopic images.

Foreign Exchange Trading Specialist, China Merchants Bank Co., Ltd. – China 01/2014-07/2016
- Executed trading orders; Performed fixed income research; Employed statistical models to predict the trend of foreign exchange rate; Developed a program to classify transaction data and processed large scale data.

SELECTED PUBLICATIONS

Anti-perturbation of Online Social Networks by Graph Label Transition (Submitted to CIKM 21') [paper]
Tech: Python, PyTorch, DGL
- Proposed a novel graph label transition model, GraphLT, to improve the robustness of the node classifier in online social networks by transiting the categorical distribution of graph convolutional networks based on dynamic conditional label transition.

How Does Bayesian Noisy Self-Supervision Defend Graph Convolutional Networks (Submitted to MLJ)
Tech: Python, PyTorch, DGL
- Proposed a new Bayesian graph noisy self-supervision model, GraphNS, to improve the robustness of the node classifier on graph data against both label scarcity and adversarial attacks.

Non-Exhaustive Learning Using Gaussian Mixture Generative Adversarial Networks (ECML-PKDD 21') [paper][code]
Tech: Python, TensorFlow with Keras
- Proposed a bidirectional generative adversarial model with Gaussian mixture prior for online detecting new emerging classes and significantly outperformed the baselines on several network intrusion datasets.

Geometrically Matched Multi-source Microscopic Image Synthesis Using Bidirectional Adversarial Network (MICAD 21') [paper][code]
Tech: Python, TensorFlow with Keras
- Proposed a novel bidirectional architecture integrating with Auto-Encoder and Generative Adversarial Networks to synthesize geometric-matched multi-source microscopic images.

Into the Reverie: Exploration of the Dream Market (IEEE BigData 19') [paper]
Tech: Python with pandas, MySQL, MongoDB
- Conducted a comprehensive analysis on famous dark-net crypto-market, Dream Market; Explored the potential for de-anonymization of vendors; Evaluated the efficacy of hierarchical agglomerative clustering for grouping together transactions corresponding to the same buyer.

Lighter U-Net for Segmenting White Matter Hyperintensities in MR Images (MobiQuitous 19') [paper]
Tech: Python, TensorFlow with Keras
- Proposed a light architecture, Lighter U-Net, to segment brain MR images for identifying WMH and to achieve comparable performance as the state-of-the-art methods by only using 17% parameters of vanilla U-Net.

SELECTED COMPETITIONS & COURSE PROJECTS

Graph Injection Adversarial Attack & Defense (SIGKDD 2020) / Tech: PyTorch with DGL

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- Designed attackers (injecting nodes only) to weaken the node classifier; Proposed a defender to defend the attacks from other teams.

Stress Level Prediction on COVID-19 Survey Data (Kaggle) [code] / Tech: TensorFlow with Keras

- Investigated classic machine learning models, e.g., xgb, lgb, svm, rf, and proposed a new ensemble method to predict the stress level.

Audio Classification on Spoken Digits (Kaggle) [code] / Tech: TensorFlow with Keras

- Employed BiLSTM to classify audio spectrograms; Applied BiGAN to detect the anomaly audio digit on test set.

Equity Price Prediction and Trading Decision Making / Tech: TensorFlow

- Employed LSTM to predict U.S. stock price; Investigated the robustness of different optimizers; Proposed two novel evaluation approaches, price momentum and relative modified sharpe ratio, for trading decision making.

Markov Chain Monte Carlo (MCMC) Bayesian Election Forecasting / Tech: Python

- Implemented Metropolis-Hastings algorithm to predict senate race and compared it with Langevin Monte Carlo method.

PintOS 1-Threads & 2-User Programs / Tech: C

- 1. Extended the functional thread system; 2. Performed "kernel" level programming of user programs.

Replicated Key-Value Storage / Tech: Android programming in Java, socket programming

- Built a simplified version of Amazon Dynamo by implementing partitioning, replication and failure handling.

TEACHING & MENTORING EXPERIENCE

Teaching Assistant, CSCI58000 Algorithm, IUPUI — Spring 2019 / Fall 2020 / Spring 2021

- Graded course writing and programming assignments; Helped students better understand the algorithms.

Teaching Assistant, CSCI54900 Intelligent Systems, IUPUI — Fall 2020

- Delivered a **lecture** to introduce the topic about genetic algorithm; Organized weekly meeting and instructed students on course project; Graded course assignments.

Teaching Assistant, CSCI57300 Data Mining, IUPUI — Fall 2019

- Helped prepare course miscellaneous; Graded assignments; Instructed students to understand the algorithms of data mining.

Mentor, Data Science Research Experience for Undergraduates (DSREU) — Summer 2019

- Assisted in DSREU summer bootcamp; Mentored undergraduate students on the academic research project.

PRESENTATIONS

Assessment of Reinforcement Learning for T1D Glycemic Control, Roche Diabetes Care, Inc. — Summer 2021
Geometrically Matched Multi-source Microscopic Image Synthesis Using Bidirectional Adversarial Network, MICAD 21' — Spring 2021
Lighter U-Net for Segmenting White Matter Hyperintensities in MR Images, MobiQuitous 19' — Fall 2019
Exploration of Crypto-market, Graduate Student Symposium, School of Science, IUPUI — Summer 2019

ACADEMIC COMMUNITY SERVICES

Technique Committee Member, MICAD 21', MobiQuitous 19'.
Reviewer, SigKDD 21', VCIP 21', MICAD 21', MobiQuitous 19', ISM 17'.

ADDITIONAL INFORMATION

Book: S. Ge, ***J. Zhuang*** et al. Flowers and Moonlight. Jinan University Press, 2015.
Certificates: Data Visualization (Coursera), CFA Level II Candidate
Languages: Cantonese (native), Mandarin (native) and English (fluent)