

Yuanqi Du

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EDUCATIONS

George Mason University

B.S. in Computer Science

GPA: 4.0/4.0

Major: 16/18 A+

Fairfax, VA

Aug 2017 - May 2021

PUBLICATIONS

- **Yuanqi Du**, Xiaojie Guo, Amarda Shehu, Liang Zhao. Interpretable Molecule Generation via Disentanglement Learning. ACM Conference of Bioinformatics and Computational Biology (BCB) Workshops: Computational Structural Biology Workshop (CSBW) 2020.
- **Yuanqi Du**, Anowarul Kabir, Liang Zhao, Amarda Shehu. From Interatomic Distances to Protein Tertiary Structures with a Deep Convolutional Neural Network. ACM Conference of Bioinformatics and Computational Biology (BCB) Workshops: Computational Structural Biology Workshop (CSBW) 2020.
- Panneer Selvam Santhalingam, **Yuanqi Du**, Riley Wilkerson, Al Amin Hosain, Ding Zhang, Parth Pathak, Huzefa Rangwala, and Raja Kushalnagar. Expressive ASL Recognition using Millimeter-wave Wireless Signals. IEEE International Conference on Sensing, Communication and Networking (SECON) 2020.
- **Yuanqi Du**, Nguyen Dang, Riley Wilkerson, Parth Pathak, Huzefa Rangwala, Jana Kosecka. American Sign Language Recognition Using an FMCW Wireless Sensor. AAAI Conference on Artificial Intelligence (AAAI) 2020 (Student Abstract).

PREPRINTES & WORKING PAPERS

- **Yuanqi Du**, Xiaojie Guo, Amarda Shehu, Liang Zhao. Controlling the Generation of Molecules via Interpretable Variational Autoencoders.
- **Yuanqi Du**, Anowarul Kabir, Liang Zhao, Amarda Shehu. Deep Learning for Tertiary Structure Reconstruction at Varying Representational Detail
- Taseef Rahman, **Yuanqi Du**, Amarda Shehu. Generative Adversarial Learning of Protein Tertiary Structures

RESEARCH EXPERIENCES

Cross-modality Medical Image Translation

Research Intern (Advisor: Hu Han, Kevin Zhou)

Beijing, China

Aug 2020 - Present

- Working on a cross-modality medical image translation project individually
- Exploring the field of image generation, conditional generation, medical image analysis and translation

Application of Graph Neural Network on Molecule Generation

Research Assistant (Advisor: Amarda Shehu, Liang Zhao)

Fairfax, VA

Feb 2020 - Present

- Working on a graph neural network application problem (biological molecule generation)
- Exploring the field of graph neural networks and applications on biological molecules

Gesture Detection in Recognizing the Difficulty of Cross-sensing Modality Data Availability **Fairfax, VA**

Research Assistant (Advisor: Parth Pathak)

Apr 2019 - Present

- Work closely with Prof. Parth and a PhD student on the gesture recognition problem
- Collect, clean, pre-process, analyze, visualize the data, build deep learning model and generative model to solve problems
- Practice and master the skills of deep learning and the cycle of data analysis, actively participate in research projects and improve the skills of communication and collaboration in a team

Protein Structure Classification

Fairfax, VA

Research Assistant (Advisor: Amarda Shehu, Liang Zhao)

Jan 2020 - May 2020

- Collaborate with an undergraduate on a biological protein structure classification project
- Design deep learning models to conquer the classification challenge, achieve 93% accuracy compared to the traditional machine learning models largely used in the literature
- Acquire knowledge of biological structure, e.g. primary/secondary structure, master the skill to create deep learning models to solve application problems

American Sign Language Recognition

Fairfax, VA

Researcher (Mentors: Parth Pathak, Jana Kosecka, Huzefa Rangwala)

Jun 2019 - Aug 2019

- Utilized a FMCW wireless sensor to recognize ASL (American Sign Language) grouped with people from other disciplines (e.g. Electrical Engineering, Bio-Engineering) and professional ASL users
- Created a data preprocessing model (Cell Division Algorithm) for wireless sensor cloud point time series data and selected the best compatible machine learning model to make 95% accuracy on a single user with a list of 19 common words (30 samples of each) and achieved 80% accuracy on cross-user (3 users) with 30% different users' data combined
- Succeeded to design a workable system for a novel task with few supporting related works and collaborated with the team using Kinect (Camera) to recognize ASL

Ensemble Anomaly Detection Algorithm

Fairfax, VA

Research Assistant (Adviosr: Carlotta Domeniconi)

Oct 2018 - March 2019

- Assisted professor and PhD student with a data mining research project
- Pre-processed datasets [R], analyzed datasets [Python] and tested the ensemble algorithm on the datasets
- Learned how to clean, pre-process, analyze, visualize data and improved the ability to solve problem individually

PROFESSIONAL EXPERIENCES

Generic Auto Machine Learning Pipeline Project

Remote

Application Project (with Yifan Xiao from Google Cloud AI)

Apr 2020 - Jul 2020

- Mentored by a Machine Learning Engineer from Google to build a generic Machine Learning pipeline, including model building, parameter tuning, model testing and model deployment
- Expanded the horizon as a practitioner, understood deeply the difference and similarity between academic research and industry engineering, mastered AutoML concept and Machine Learning pipeline

Department of Computer Science at George Mason University

Fairfax, VA

Undergraduate Teaching Assistant

Aug 2018 - Dec 2019

- Assist professor with administrative and academic tasks in the Object-oriented Programming, Data Structures and Data Mining courses, e.g. Test and Grade students' code with certain expectations, and hold office hours, review sessions
- Provide online and in-person academic supports to students by answering questions pertaining to class lectures, lab exercises, projects and career/research insights
- Observe and summarize problems which many students have in order to provide feedback and give suggestions based on the problems to professors to improve the curriculum

Volgenau School of Engineering at George Mason University

Fairfax, VA

Peer Mentor

Feb 2019 - May 2019

- Guided students to think of problems in more professional and engineering aspects and long-term studies
- Aided students with their questions, e.g. projects, obscure concepts, and demonstrated how the knowledge is applied in the industry and the prospects of the fields to make them understand better
- Mastered how to break complicated things into small parts and interpret them piece by piece, how to connect the knowledge with real-world applications and how to convey the ideas to others clearly

Ynet Interactive Technologies Ltd

Beijing, China

Software Engineer Intern

Dec 2018 - Jan 2019

- Involved in a team with the development of the Internet Financial Platform 2.0
- Implemented various components, e.g. Interceptors, and created required logic by connecting components in certain ways
- Acquired the skeleton of a well-developed web system and comprehended how to work on a large program step by step and perform as a team

PROJECTS

Deepfake Detection

Fairfax, VA

Student Organization Project (with Dom Huh)

Jan 2020 - May 2020

- Explored Deepfake detection, reviewed literature and built models to solve the problem
- Collaborated with another senior student and led the project in the student organization (Net-Brain)
- Learned the current progress on Deepfake detection, learned how to do Deepfake detection with current SOTA models

SKILLS

- Programming Skills: Python (Advanced), Java (Advanced), C (Proficient), MySQL (Proficient), R (Basic), C++ (Basic), Assembly Language (Basic), Lisp (Basic), Haskell (Basic), LaTeX (Basic)
- Tools: TensorFlow/Keras/PyTorch (Intermediate), DreamWeaver (Intermediate), Tableau (Basic)
- Certificates: **Machine Learning** (Coursera), **Deep Learning** (Coursera), **Deep Neural Network with PyTorch** (Coursera), **Probabilistic Graphical Models I** (Coursera)
- Languages: English (Fluent), Chinese (Native)

AWARDS & ACHIEVEMENTS

- Distinguished Undergraduate Teaching Assistant Award 2019-2020
- Distinguished Undergraduate Research Award 2019-2020
- NSF REU Fellowship 2019-2020
- GMU OSCAR Fellowship Summer 2019
- Outstanding Undergraduate Teaching Award 2018-2019
- Dean's List all semesters
- Future Elite Scholarship 2018

Professional Service

- Co-organize DeepSpatial 2020 co-located with KDD 2020 (Web Master)
- Co-organize Applications in AI Workshops at GMU
- Co-organize Deep Learning, Reinforcement Learning Workshops at GMU

References

Liang Zhao

Assistant Professor, George Mason University
Address: Room 5343 Engineering Building, 4400 University Drive, Fairfax, VA 22030
Tel: (703)-993-5910
Email: lzha09@gmu.edu

Parth Pathak

Assistant Professor, George Mason University
Address: Room 5318 Engineering Building, 4400 University Drive, Fairfax, VA 22030
Tel: (703)-993-6232
Email: phpathak@gmu.edu

Carlotta Domeniconi

Associate Professor, George Mason University
Address: Room 4424 Engineering Building, 4400 University Drive, Fairfax, VA 22030
Tel: (703)-993-1697
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Amarda Shehu

Professor, George Mason University
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Huzefa Rangwala

CS Depart Chair, George Mason University
Address: Room 4423 Engineering Building, 4400 University Drive, MS 4A5 Fairfax, VA 22030
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Yifan Xiao

Cloud AI ML Engineer, Google
Address: 1600 Amphitheatre Pkwy, Mountain View, CA 94043
Tel: (872)-588-2791
Email: xiaoyifan@google.com

Extracurricular Activities

- Activities: ACM SIGBIO (Student Member), GMU ACM (Member), NetBrain Club (Research Director), GMU ASA (Member), GMU IEEE (Member), GMU OSCAR Research Celebration 2019, GMU OSCAR Research Celebration 2020
- Volunteering: VSE Prospective Student Visiting Day Student Leader