Yuanqi Du

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EDUCATIONS

George Mason University **Fairfax, VA**
B.S. in Computer Science *Aug 2017 - May 2021*
GPA: 4.0/4.0
Major: 16/18 A+

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

Medical Image Translation **Beijing, China**
Research Intern (***Advisor: Hu Han, Kevin Zhou***) *Aug 2020 - Present*

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

Application of Graph Neural Network on Molecule Generation **Fairfax, VA**
Research Assistant (***Advisor: Amarda Shehu, Liang Zhao***) *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

Application of Milli-meter Wave Signals **Fairfax, VA**
Research Assistant (***Advisor: Parth Pathak***) *Apr 2019 - Present*

- Work closely with a professor and a PhD student on milli-meter wave signals related research projects
- 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 Geroge 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 (NetBrain)
- 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*
- China 1+2+1 Program 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

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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