Syed Rizvi

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RESEARCH INTERESTS

Graph Neural Networks, Convolutional Neural Networks, Spatiotemporal modeling, Explainable AI (XAI)

EDUCATION

College of Natural Science and Mathematics, University of Houston, TX
Bachelor of Science in Computer Science **December 2022**
Cumulative GPA: 3.93, Major GPA: 3.85

Relevant Coursework: Artificial Intelligence I, Data Science I, Multivariable Calculus, Linear Algebra, Software Design.

RESEARCH EXPERIENCE

Yale University, New Haven, Connecticut **June 2022 – Present**
Visiting Research Student

- Advised by Dr. David van Dijk, Yale School of Medicine and Computer Science
- Worked on gene interaction analysis using attention mechanisms and Graph Neural Networks

Houston Methodist, Houston, TX **December 2021 – Present**
Undergraduate Researcher

- Advised by Dr. Vittorio Cristini and Dr. Prashant Dogra, Department of Mathematics in Medicine
- Investigated spatiotemporal Graph Neural Network architectures for COVID-19 pandemic forecasting on dynamic infection and international flight data

HULA Research Laboratory, Houston, TX **September 2020 – Present**
Undergraduate Researcher

- Advised by Dr. Hien V. Nguyen, Department of Electrical and Computer Engineering
- Investigated annotation-efficient frameworks for case-level classification as well as semi-supervised segmentation on medical imaging data
- Developed and deployed two custom LabelBox image annotation interfaces using React

Taipei Medical University, Taipei, Taiwan **March 2021**
Data Analyst Intern

- Advised by Dr. Syed Abdul-Shabbir, Taipei Medical University Graduate Institute of Biomedical Informatics
- Performed data processing, correlation analysis, and visualization on wearable device data measurements taken from 18 Taiwanese patients

PUBLICATIONS

- Cicalese, P.A., **Rizvi, S.A.**, Wang, V., Patibandla, S., Yuan, P., Zare, S., Moos, K., Batal, I., Clahsen-van Groningen, M., Roufosse, C. and Becker, J. U. "MorphSet: Improving Renal Histopathology Case Assessment Through Learned Prognostic Vectors". *International Conference on Medical Image Computing and Computer-Assisted Intervention* (**MICCAI**). Springer, Cham, 2021.

PREPRINTS

- **Rizvi, S. A.**, Cicalese, P. A., Seshan, S. V., Sciascia, S., Becker, J. U., Nguyen, H. V. "Histopathology DatasetGAN: Synthesizing Large-Resolution Histopathology Datasets." *arXiv preprint arXiv:2207.02712* (2022).

PRESENTATIONS

- MorphSet Project Oral Abstract, 2021 AI in Nephropathology Workshop in Amsterdam
- Natural Language Processing and Entity Recognition Models, Phillips 66
- Custom Image Annotation Interfaces using LabelBox, University of Buffalo Computer Vision Group

AWARDS AND RECOGNITIONS

- Full-time offer as a Software Development Engineer at Amazon
- Provost's Undergraduate Research Scholarship ($1000), University of Houston, Spring 2022
- Dean's Distinguished Scholar's List, University of Houston
- First prize in the 2021 HP & AWS Bot-a-thon
- Third prize ($3000) in the 2020 AWS & NVIDIA Environmental Hackathon

INDUSTRY EXPERIENCE

Amazon, Austin, TX **May 2022 – Present**

Software Development Engineer Intern

- Developed an independent launcher application for starting customer support screen sharing sessions on Amazon-built devices using the Spring Java framework

Phillips 66, Houston, TX **May 2021 – August 2021**

IT Intern (Natural Language Processing)

- Trained domain-specific entity recognition models on land exchange agreements, identifying 6 contract entities within unstructured text and reaching 87% overall model precision
- Deployed models to AzureML Cloud Platform and developed an automated Azure Function App to run preprocessing and inference on contract documents at test time within 12 seconds

INDEPENDENT PROJECTS

Node Classification Using Graph Neural Networks **March 2022**

- Implemented prominent GNN architectures for node classification and edge importance analysis on the Cora citation network
- Developed in Pytorch and Pytorch Geometric for CS 4337

AWS Lex Bot Generation Pipeline **January 2021**

- 1st place finish among 20+ teams at the 2021 HP & AWS Bot-a-thon competition
- Wrote chatbot configuration files and led presentation development

Autoencoder Anomaly Detection **August 2020**

- 3rd place finish in the AWS & NVIDIA Environmental Hackathon ($3000 award)
- Trained an unsupervised autoencoder machine learning model on environmental sensor data taken from Amazon's Seattle Sphere conservatories

CERTIFICATIONS

- Machine Learning, Stanford University on Coursera
- Data Science Specialization, IBM on Coursera

SKILLS

Programming Languages: Python, C++, Java, R, MATLAB, SQL, JavaScript

Libraries:	Pytorch, Pytorch Geometric, Tensorflow, Scikit-learn, Pandas, Numpy
Tools:	Parallel programming, Distributed training, HPC job scheduling, Git, Jupyter Notebooks

ACTIVITIES

Management Information Systems Student Organization **January 2020 – Present**

Professional Development Committee Member

- Worked with teams of 20+ committee members to perform 60+ resume reviews per semester
- Presented in and assisted the organization of a professional development workshop

REFERENCES

Dr. Hien Van Nguyen
Associate Professor
University of Houston, Department of Electrical and Computer Engineering
hvnguy35@central.uh.edu

Dr. Prashant Dogra
Assistant Research Professor of Mathematics in Medicine
Houston Methodist Research Institute
Weill Cornell Medical College
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Dr. Vittorio Cristini
Program Chair at Houston Methodist
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