Ruchir Aggarwal, M.S.

Deep Learning Professional | Big Data Analyst | Software Engineer

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CONTACT DETAILS

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OBJECTIVE

Result-oriented engineer, ethical research analyst, self motivated, and self driven individual with quality of group dynamics looking to work with an impeccable organization

EDUCATION

University of Michigan, Ann Arbor, USA April 2020
M.S. in Computer Engineering
Department of Computer Science and Engineering

Purdue University, West Lafayette, USA May 2018
B.S. in Computer Engineering
School of Electrical and Computer Engineering

TECHNICAL EXPERTISE

Deep Learning Frameworks:
Pytorch, OpenAI Gym

Advanced Mathematics And Statistical Proficiency:
Advanced Calculus, Linear Algebra, Verification Forecasting, Advanced Regression Analysis, Exploratory Data Analysis, Significance Testing

Linux Proficiency:
Shell Scripting, Parallel Processing, Big Data Management and Analysis

Programming:
Proficient: Python, MongoDB
Prior Experience: C, HTML, CSS, SQL, MATLAB

PROJECTS

SinGAN: Learning a Generative Model from a Single Natural Image Jan 2020 - May 2020
University of Michigan, Ann Arbor, MI

- Implemented the pyramid GAN architecture to capture patch distribution at different scales
- Executed training module for the model
- Implemented random (w/ scaled) sampling to generate high quality diverse samples

Multi-Step Prediction for Curiosity Driven Learning Feb 2019 - May 2019
University Of Michigan, Ann Arbor, MI

- Extended the work of Large-Scale Study of Curiosity-Driven Learning to multi-step predictions
- Changed the Forward Dynamics model to generate two step predictions, updated the loss and reward function for the agent
- Visualizations from training runs
- Developed the project website

WORK EXPERIENCE

Graduate Student Researcher Nov 2018 - Present
University of Michigan, Ann Arbor, MI

- Analyze the development, coordination, and success for social movements of varying scales under different data collection and labeling schemes
- Propose and develop a system that optimizes data collection strategies for Twitter and Youtube
- Manage and integrate MongoDB use with the project codebase
- Create unit test framework for the system

RESEARCH EXPERIENCE

Undergraduate Student Researcher Jan 2018 - May 2018
Water Resources And Ecohydrologic Engineering Group
Purdue University, West Lafayette, IN

- Designed and implemented a system to automate the assessment of changing climate on hydrology and nutrient loadings
- Managed database for climate projections and scripted to visualize the corresponding results
- Automated parallel runs on high performance computing system

Undergraduate Research Fellow May 2017 - Aug 2017
Water Resources And Ecohydrologic Engineering Group
Purdue University, West Lafayette, IN

- Co-ordinated with Prof. Margaret Gitau to create WQUICK (Water Quality Index Calculator), an application that calculates and presents a visual analysis of Water Quality Index data
- Applied regression techniques to find the relation of water quality indices over time
- Reduced runtime of the application by 6 times through vectorization of data
- Created and maintained documentation for the application

PUBLISHED ARTICLE/S

- Mehan, S., Aggarwal, R., Gitau, M.W.*, Flanagan, D.C., Wallace, C., and Frankenberger, J. Assessment of hydrology and nutrient losses in a changing climate in a subsurface-drained watershed. Science of the Total Environment, Volume 688, Pages 1236-1251, 2019.

MEETINGS

- Mehan, S., Amatya, D., and Aggarwal, R. Meteorological Data Challenges and Opportunities in Designing Matrices Relating Climatology Impacting Changes in Woodland Ecosystems. Annual International Meeting organized by American Society of Agricultural and Biological Engineers, July 2020. (Oral Presentation)
- Aggarwal R., Mijares V., and Gitau M.W. "Development of A Water Quality Status and Trend Detection Tool*". *The Summer Undergraduate Research Fellowship (SURF) Symposium.* Paper 78, August 2017. (Oral Presentation)

REFERENCES

- Ceren Budak, Ph.D. — Assistant Professor, University of Michigan
- Margaret W. Gitau, Ph.D. — Associate Professor, Purdue University
- Sushant Mehan, Ph.D. — Post Doctoral Scholar, Ohio State University