

# 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, OpenAI Baselines

### 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:

Advanced: Python

Intermediate: C, HTML, CSS, MongoDB

Intro: SQL, MATLAB

### IDE/Text Editors:

PyCharm, IntelliJ IDEA, Brackets, Sublime Text, Atom, Notepad++

## 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
- Executed training module for the model
- Implemented random and scaled random sampling

### 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

RESEARCH EXPERIENCE	<b>Graduate Student Researcher</b>	Oct 2018 - Apr 2020
	<b>University of Michigan, Ann Arbor, MI</b>	
	<ul style="list-style-type: none"> <li>Analyze the development, coordination, and success for social movements of varying scales under different data collection and labeling schemes</li> <li>Propose and develop methods for optimizing data collection strategies for Twitter</li> <li>Model determinants of protest participation and movement success using curated data</li> <li>Create unit test framework for the system</li> </ul>	
	<b>Undergraduate Student Researcher</b>	Jan 2018 - May 2018
	<b>Water Resources And Ecohydrologic Engineering Group</b>	
	<b>Purdue University, West Lafayette, IN</b>	
	<ul style="list-style-type: none"> <li>Designed and implemented a system to automate the assessment of changing climate on hydrology and nutrient loadings</li> <li>Managed database for climate projections and scripted to visualize the corresponding results</li> <li>Automated parallel runs on high performance computing system</li> </ul>	
	<b>Undergraduate Research Fellow</b>	May 2017 - Aug 2017
	<b>Water Resources And Ecohydrologic Engineering Group</b>	
	<b>Purdue University, West Lafayette, IN</b>	
	<ul style="list-style-type: none"> <li>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</li> <li>Applied regression techniques to find the relation of water quality indices over time</li> <li>Reduced runtime of the application by 6 times through vectorization of data</li> <li>Created and maintained documentation for the application</li> </ul>	
PUBLISHED ARTICLE/S	<ul style="list-style-type: none"> <li>Mehan, S., <u>Aggarwal, R.</u>, 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. <i>Science of the Total Environment</i>, Volume 688, Pages 1236-1251, 2019.</li> <li><u>Aggarwal R.</u>, Mijares V., and Gitau M.W. "Development of A Water Quality Status and Trend Detection Tool*". <i>The Summer Undergraduate Research Fellowship (SURF) Symposium</i>. Paper 78, August 2017.</li> </ul>	
MEETINGS	<ul style="list-style-type: none"> <li>Mehan, S., Amatya, D., and <u>Aggarwal, R.</u> 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)</li> </ul>	
REFERENCES	<ul style="list-style-type: none"> <li><u>Ceren Budak, Ph.D.</u> Assistant Professor, University of Michigan</li> <li><u>Margaret W. Gitau, Ph.D.</u> Associate Professor, Purdue University</li> <li><u>Sushant Mehan, Ph.D.</u> Post Doctoral Scholar, Ohio State University</li> </ul>	