

# Varun Ravi Varma

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## PERSONAL INFORMATION

Artificial Intelligence Research Student  
Date of Birth: 17 August 1994  
Address: Soephuisstraatje 18-02,  
9712 BZ, Groningen,  
Netherlands



## PERSONAL PROFILE

Focused individual with experience in teaching and training as well as consulting. Easily adapts to the needs of the teaching environment and appreciates the dynamics of interacting with students and peers. Strong fundamentals in the design and implementation of intelligent agents and multi-agent systems, both in theory and in practice. Passionate about research in the areas of Reinforcement Learning and continuous control systems, and interpretable decision making using multi-agent systems, automaton theory and neural networks.

## EDUCATION

### UNIVERSITY OF GRONINGEN | M.SC. ARTIFICIAL INTELLIGENCE

2019 - 2021 | Groningen, Netherlands

- Artificial Intelligence Researcher with a focus in Multi-Agent Systems, Deep Learning, Automaton Theory and Reinforcement Learning.
- Thesis : Design and implementation of an Interpretable Reinforcement Learning Agent using the Regression Tsetlin Machine.
- Assisted with Deep Learning practical, providing advice to students and assisting students with implementations of deep learning systems. Also supported the professor in reviewing preliminary practical reports.
- Assisted with Logical Aspects of Multi-Agent Systems, hosting tutorial sessions to assist students with coursework and assisted the professor with reviewing course assignments and projects.

### VISVESWARAYA TECHNOLOGICAL UNIVERSITY | B.E MECHANICAL ENGINEERING

2012 - 2016 | Karnataka, India

- Mechanical Engineer with a focus on Thermodynamics, Computer Aided Design and Analysis and Mechanical Component Design.
- Final Year Engineering Project: Design and Development of a Peltier Effect Solar Cell.

## EXPERIENCE

### NEUDESIC GLOBAL SERVICES LLC | CONSULTANT II - DATA ANALYTICS

July 2018 - November 2018 | Bangalore, India

- Experience with handling large data, data cleansing, machine learning and deep learning.
- Gathered expertise in solutioning for Proof-of-Concept applications of Machine Learning and automation for clients in various sectors.
- Exposure to handling various formats of structured and unstructured data, both on cloud and on-premise.
- Started an upskilling group for co-workers focusing on statistics and machine learning. Planned sessions and presided over weekly theory and practical sessions.

## **NEUDESIC GLOBAL SERVICES LLC | CONSULTANT I - DATA ANALYTICS**

July 2017 - June 2018 | Bangalore, India

- Worked on data warehousing and analytics projects for clients across various industries.
- Assisted in organizing an in-office hackathon event for helping co-workers try new technologies.
- Demonstrated technical capabilities through hobby projects and proof of concepts.
- Assisted with design workshops and technical sessions for sharing technology updates across teams.

## **NEUDESIC GLOBAL SERVICES LLC | ASSOCIATE CONSULTANT**

June 2016 - June 2017 | Bangalore, India

- Worked on client projects involving PowerShell scripts for automation, web applications and upgrading and maintaining existing architecture and applications.

## RESEARCH PROJECTS

### **MASTER'S THESIS | INTERPRETABLE REINFORCEMENT LEARNING WITH REGRESSION TSETLIN MACHINE**

Project on first-step design and implementation of reinforcement learning agents using the Regression Tsetlin Machine. The propositional logic based automaton is expected to be interpretable and provide faster computation compared to large scale neural networks. Initial experiments display issues with scaling the automaton to represent complex functions in the propositional language used by the automaton, affecting interpretability.

## PERSONAL PROJECTS

### **HACKEREARTH | ROAD SIGN DETECTION**

Implement machine learning models to determine the effective direction a road sign is placed towards based on multiple parameters.

- PowerBI: Visualizing data distribution and correlation
- Algorithms: XGBoost, Random Forests, Regression Models
- Frameworks: Scikit-Learn, Numpy
- Tools: JuPyter, PowerBI

### **HACKEREARTH | AD CLICK PREDICTION**

Prediction of ad clicks based on geographical and historical data on website requests.

- Algorithms: XGBoost, Random Forests, Regression Models
- Frameworks: Scikit-Learn, Numpy
- Tools: JuPyter

### **HACKEREARTH | PRODUCT RECOGNITION AND CLASSIFICATION**

Utilize deep convolutional networks to recognize and classify 25 different supermarket items.

- CNN Architectures: Inception, VGG-19, ResNet, Custom architecture
- Frameworks: Keras, Scikit-Learn, Numpy
- Tools: JuPyter

### **HACKEREARTH | NETWORK ATTACK PREDICTION**

Implement machine learning models to determine the possible attacks on individual servers in a server farm using anonymised parameters.

- Algorithms: XGBoost, Regression Models
- Frameworks: Keras, Scikit-Learn, Numpy
- Tools: JuPyter

### **AWESUMMLY | TOPIC MODELLING**

Classify NEWS articles into the correct topic tree based on content.

- Frameworks: SpaCy, NLTK, Glove, Rake, Scikit-Learn, Numpy
- Tools: JuPyter

## **HACKEREARTH | TEXT SUMMARISATION**

Summarize NEWS articles and generate headlines based on long form content.

- Frameworks: SpaCy, NLTK, Glove, Rake, Scikit-Learn, Numpy
- Tools: JuPyter

## SKILLS

### **TOOLS**

Specialized Software:

Microsoft PowerBI • Tableau • Microsoft SSRS • Graphing Tools

Operating Systems:

Linux • Unix

Databases:

Microsoft SQL Server • MongoDB • MySQL • MySQL

### **PROGRAMMING LANGUAGES**

High Level Languages:

Python • C++ • C# • Julia

Scientific Frameworks (Python specific):

Numpy • Scipy • Scikit-Learn • Pandas • Tensorflow • pyTsetlinMachine

### **OTHER SKILLS**

Data visualization

Report generation (with LaTeX, word processor and Markdown)

Design and Implementation of Multi-Agent Systems

Development and Analysis of Logic-Based Systems

Development and Analysis of Continuous Learning Systems

## REFERENCES

**PROF. DR. OLE-CHRISTOFFER GRANMO**

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Centre for Artificial Intelligence Research, University of Agder

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