

# Vishal Sreenivasan

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## Summary

I'm a mechatronics bachelor turned artificial intelligence student who likes to create agents and solutions using computer vision, reinforcement learning & natural language. I am currently graduating master's in Artificial Intelligence at the University of Groningen.

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## Education

### MSc. Artificial Intelligence

University of Groningen • Groningen, Groningen

10/2022

- Modeling civil violence using multi-agent simulation.
- Prompt learning using GPT-2 and BERT. The prompts are modeled using custom templates. AutoPrompt is also used for comparison. Since BERT does not support text generation, GPT-2 turned out to be a better performer. The study was extended using GPT-NEO outperforming GPT-2.
- DCGAN with embedding for face generation based on selected attributes. The attributes can be selected by the user and are provided as the input for the model. The attribute vector is embedded in the generator network.
- Analyzing Splendor Game using Dynamic Epistemic Logic (DEL).

### B.Tech Mechatronics

SRM Institute Of Science & Technology ( Deemed University) • Chennai, Tamil Nadu

04/2019

- Graduated—3.5+ GPA
  - Worked on obstacle avoidance bot using 3-D Vision. Depth data from the Kinect sensor is processed and the nearest object (obstacle) is found using computer vision.
  - Drive Cycle Analysis of Parallel Hybrid Electric Vehicle (PHEV) Using Multi-Layer Perceptron network. The drive patterns of the various vehicles are collected manually over time and further classified into five different categories. The switching in the hybrid is done based on the classification using MLP output.
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## Experience

### Machine Learning Intern

Slimmer Ai • Groningen, Groningen

11/2021 - 07/2022

Master Thesis: Multimodal Neural Networks to Classify Copyright Images in Manuscripts. Built a preprocessing pipeline with computer vision and text-processing methods to extract figures and captions from manuscripts. The multimodal network uses average fusion for combining feature vectors.

### Computer Vision Intern

Sigillieum Software Consultants • Chennai, Tamil Nadu

10/2019 - 07/2020

- Detection and classification of chassis components for the Nokia assembly unit using computer vision and deep learning.
  - Developed a voice bot using Dialogflow. It is further integrated using FreePBX and Asterisk.
  - Face to Face reconstruction using a generative model based on ADAIN and SPADE architectures. The model is improved using NVIDIA's FUNIT loss and layer embeddings.
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## Skills

Python, C++, Deep Learning, Computer Vision, NLP, Data Structures & Algorithms

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## Projects

### [Splendor Game with Dynamic Epistemic Logic](#)

- The game is designed using PyGame for the course "Logical Aspects of Multi-Agent Systems" and analyzed using Dynamic Epistemic Logic.

### [Continuous Control using Actor-Critic and DDGP](#)

- Actor critic training is used to train multiple agents with the goal of balancing objects. The agents share knowledge and optimize actions using a shared experience replay with the aim of achieving higher rewards.

### [Modelling Civil Violence using Multi Agent Simulation](#)

- The project is a part of the course "Design of Multi-agent systems". The citizen agents are modelled based on their wealth and hardship. The grievances of the agents are calculated using cop agents and the change in system.

### [Multi-Agent Tennis](#)

- Two agents control rackets to bounce a ball over a net. If an agent hits the ball over the net, it receives a reward of +0.1. If an agent lets a ball hit the ground or hits the ball out of bounds, it receives a reward of -0.01. Thus, the goal of each agent is to keep the ball in play. The environment is solved using Twin Delayed DDPG.

### **Organoid Segmentation using Self-Supervised Learning**

- Organoids are in vitro cellular structures grown in artificial environments. Self-supervised learning method DINO is used to train teacher and student networks using unlabelled data. A comparison between Vision Transformer and CNN is performed for final segmentation.
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## Portfolio

Website: <https://unfussygarlic.github.io>

Certificates: <https://www.linkedin.com/in/vishalsreenivasan/>

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## Languages

English, Hindi, Tamil