Nishant Ramakuru

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Education

UNIVERSITY OF BRISTOL
MSc in Robotics
2019 – 2020 Bristol, UK
Supervised by Dr.Namid Stillman & Prof.Sabine Hauert(UoB).
Courses - **Distinction**, 70.70%
Overall -**Frist Class Honours**, 68.47%

IIIT, PUNE
BEng in Electronics
2014 – 2018 Pune, India
Supervised by Dr.Mohan Naidu(IIT Bombay)
Distinction, 7.5 GPA

DELTA JUNIOR COLLEGE
Higher Secondary Education
2012 – 2014 Hyderabad, India
Distinction, 91.3%.

Courses

Artificial Intelligence
Image Processing
Computer Vision
Intelligent Adaptive Systems
Robotics Systems
Uncertainity Modelling

Skills

LANGUAGES
Python • C/C++ • Matlab • Java • Bash

TOOLS
JAX • PyTorch • TensorFlow • SQL • Git

Honors

P. P. CHHABBRIA AWARD
For outstanding contributions at National and International level

EDGE INNOVATION CHALLENGE
Secured 2nd place for increasing the propulsion efficiency of drones organized by EDGE(UAE)

SMART INDIA HACKATHON 2017
Winner in nation wide competion organized by the ministry of defense

INTEL HIGHER EDUCATION CHALLENGE 2017
Secured 9th nation wide

Experience

HALCON | Robotics Engineer
Feb 2022 – Present Abu Dhabi, UAE
Designing and evaluating prototypes. Developing robotics solutions using AI algorithms for localization, object detection & tracking and control.

- **SPEED CONTROL USING DEEP Q NETWORKS** | Halcon
  Implemented Deep Q learning to control brushless DC motor to Improve propulsion efficiency of UAVs by 10%. Decreased battery consumption compared to traditional PID controllers by 23%.
- **COMPUTATIONAL FLUID DYNAMICS USING JAX** | Halcon
  Conducting research to streamline CFD parameters, three-dimensional turbulence, compressibility effects, and two-phase flows using JAX framework.

ALGO8 | Machine Learning Engineer
May 2018 – Aug 2019 Banglore, India
Building algorithms & highly adept at clustering & classification, web scrapping, data analysis & visualization to increase business efficiency.

- **IMAGE PROCESSING** | ALGO8
  Alcohol level detection based on thermal images for Cultivar (CANADA). Prediction of the confidence level of alcohol content based on thermal heat maps and facial feature extraction.
- **REGRESSION ANALYSIS** | ALGO8
  Prediction of Xylene and Melt flow rate in HMEL(chemical plant. Carrying out ad-hoc analysis and production executable APIs from data procurement to prediction. Accuracy of 90 for recall quality
- **ANOMALY DETECTION** | ALGO8
  Prediction of UV lamp failure in Unilever. Predicting failure events using auto encoders in a class imbalance dataset. Overall lowered production time and save costs, achieved an 85% Recall Rate across 3 assemblies on 21 lamps.

Research

Designing Considerate Swarms
N. Ramakuru, N. Stillman
Proceedings of The Conference on ALIFE, International Society of Artificial Life, 2021
Proposed a game-theoretic approach to design agents that explicitly considers the behaviour and preferences of other agents. Agents also displayed interesting social behaviours, queuing, endogenously.

Predicting Collective Dynamics using Dynamic Atention Neural Inference **DANI**
N. Ramakuru, N. Stillman
Ongoing
The aim of the research is to successfully predict trajectories of swarming agents in a simulated environment by learning the interacting dynamics in the latent space using graph attention networks and inference based models.

Internships

ENALL INDUSTRIES | Hyderabad
Integration of servos and laser intensity control in acrylic CO2 laser cutting machine for cutting and engraving operations.

VA CHAMP INDUSTRIES | Hyderabad
Calibration and programming of automation machinery, PLCs to desired functions.

MATHEMATICS & PYTHON TUTOR | Bristol
Taught mathematics and python programming to high school students to prep for GCSE A levels.

Achievements

CAPTAIN OF THE WINNING TEAM AT NICMAR FUTSAL TOURNAMENT 2016 & 2017 | Pune

CAPTAIN OF THE WINNING TEAM AT COEP FUTAL TOURNAMENT | Pune

WINNER AT IIIT SUPER LEAGUE FUTSAL TOURNAMENT 2016 | Pune

HEAD OF MARKETING AND MEDIA RELATIONS, DHRUVA 2016 | IIT Pune

PARTICIPANT OF WAR OF BANDS 2016 AT SYMBIOSIS LAVLE | Pune

WINNER AT INTER-HOUSE FOOTBALL, BASKETBALL AND COCO TOURNAMENTS AT BHAVANS SRI RAMAKRISHNA VIDYALAYA, 2008 | Hyderabad

Projects

OSINT | Ministry Of Defense, India
Created an intelligence tool to multi-factor methodology for collecting, analyzing and making decisions about data accessible in publicly available sources to draw metrics carrying out sentiment analysis, topical modelling, reach, impression and engagement analysis on social media.

FORECASTING POTENTIAL HEALTH THREATS | Intel
Proposed and devised a gadget to forecast potential health threats using a combination of modified support vector machines and reinforcement learning. Capable of predicting heart attacks, allergic reactions and asthma attacks 2-3 minutes prior to event.

Academic Projects

ASIMOV – THE PERSPICACIOUS OCTAPOD | IIIT Pune
An 8 legged spider bot that is capable of clearing mazes on its own using a combination of Tremaux algorithm and Markov decision process. Capable of mapping environments and transmitting real-time data to an online database. Implemented and deployed onboard AI model on Intel Eddison processor

DESIGNING CONSIDERRATE SWARMS | University Of Bristol
Implemented Considerate algorithm, using a combination of conditional game theory and evolutionary algorithm, considerate behaviour, to avoid actively inconveniencing each other in an evacuation scenario. Displayed behaviours like queuing and clustering endogenously and observed the effects of memory on agents' decisions.

ROMI | University Of Bristol
The aim of this project is to enable an autonomous robot to follow a user defined path, black contour on a white background, and return to the original position without any human intervention. The robot used here was a Pololu Romi, a differential drive versatile mobile robot with an Arduino Leonardo Microcontroller board (ATMEL ATMEGA32u4) embedded on it.

FUZZY LOGIC | University Of Bristol
The aim of this project was to compare inverse kinematics models for 3R manipulator using adaptive fuzzy inference systems and neural networks, (MLP and polynomial poly-processor neural network).

ROBOTIC MANIPULATOR | University Of Bristol
The aim of this project was to derive Denavit–Hartenberg representation of the forward kinematics of Lynx motion robot arm. Analyse the workspace of the end-effector and plot 2D and 3D views of the workspace. Derive the inverse kinematics for the Lynx motion robot Solve and implement parallel robot inverse kinematics.