

Vedant Shah

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EDUCATION

BITS Pilani, Goa Campus

B.E. Electronics and Communication, 8.89 CGPA

Sancoale, Goa

Aug 2018 - Present

EXPERIENCE

APPCAIR, BITS Goa

Remote

Undergraduate Researcher

Jan 2021 - Present

Advisors: Prof. Ashwin Srinivasan, Prof. Tanmay Verlekar, Dr. Raghav Singh

- Working on Pedestrian Detection in low-light and occluded scenarios, in collaboration with Oyla Inc.

McNaughton Lab, UCI

Remote

Research Intern

Jan 2021 - Present

Advisor: Rajat Saxena

- Working on continual reinforcement learning

Robotics Lab, IIT Allahabad

Remote

Research Intern

Aug 2020 - Nov 2020

- Explored the use of Deep Reinforcement Learning for robot grasping
- Worked with augmentation techniques such as Hindsight Experience Replay(HER)

Indira Gandhi Center for Atomic Research, Kalpakkam

Remote

Summer Research Intern

May 2020 - Jun 2020

Advisor: Ms. N. Malathi

- Worked on a project on Augmentation of Embedded Systems using pulsating sensors
- Designing an embedded system for a device utilising pulsating sensors for purposes such as level control in the nuclear reactor using STM32F103C8 microcontroller as the processing unit

RELEVANT PROJECTS

aihaven [CODE]

May 2020 - Present

- Open source collection of standalone and reusable implementations of various Reinforcement Learning Algorithms and Deep Learning models using PyTorch

gennav [CODE][DOCS]

May 2020 - Present

- General purpose python library that can be used for path planning in various robotic settings
- Core contributor to the library
- Worked on adding Artificial Potential and other path planning algorithms to the library and some other minor things

Robotic Sketcher [REPO]

Jan 2020 - Feb 2020

- Made a full-scale prototype of a polargraph
- Support for multiple drawing styles such as stipples, Death2Sharpie, TSP, etc.

GenRL [CODE][DOCS]

Aug 2020 - Present

- PyTorch first Reinforcement Learning Library with support for classical RL, Deep RL and Contextual and Multiarmed Bandits
- Currently working on adding Multi Agent Reinforcement Learning algorithms to the library using PettingZoo.

OpenCV Implementations [CODE]

Dec 2019 - Present

- Exploring different applications of Computer Vision using the computer vision library OpenCV
- Includes implementations for applications such as Aruco Marker Detection, Object Tracking and Lane Detection

Volleyball-ML [CODE/DATA][REPORT]

Oct 2020 - Nov 2020

- Scraped data for the NCAA women's volleyball league from the NCAA website and preprocessed it into a dataset having combined features of player and team performances having 32600+ data points for a data of 4 years
- Tested different machine learning models using feature selection and other techniques

RESEARCH INTERESTS

Reinforcement Learning, Graph based Deep Learning, Robot Learning, Meta Learning, Causal Inference, Distributed Computing, Multi Agent AI systems, Cognitive Neuroscience, Lifelong Learning

RELEVANT COURSES

OFFLINE : Probability and Statistics, Computer Programming, Data Structures and Algorithms[†], Discrete Mathematics, Machine Learning, Introduction to Cognitive Neuroscience, Control Systems, Modern Control Systems, Meta Learning[†]

ONLINE : Machine Learning - Stanford University, Deep Learning Specialization - deeplearning.ai, CS231n - Stanford University, Deep Reinforcement Learning - UC Berkely, Tensorflow Specialisation - deeplearning.ai, Fundamentals of Reinforcement Learning - University of Alberta

[†] = In Progress

TECHNICAL SKILLS

Programming : C, C++, Python, Bash, MATLAB

Artificial Intelligence : PyTorch, Tensorflow, Keras, Numpy, Pandas, Scikit-Learn, Matplotlib

Robotics : Robot Operating System, Gazebo, STDR, rViz, Moveit, MAVROS, PX4

Development Platforms : Arduino, RaspberryPi, STM32

Tools and Softwares : Proteus, Arduino IDE, KiCAD, AutoCAD, Git, L^AT_EX

POSITIONS OF RESPONSIBILITY, MENTORING AND TEACHING

Coordinator, Electronics and Robotics Club, BITS Goa

April 2020 – Present

- Managing a group of 100+ undergraduate students working in the field of robotics
- Responsible for overseeing research projects, organising semester long student run courses on robotics, ensuring easy access to learning resources to the members, involved in research discussion sessions and managing funds

Core Member, Society for Artificial Intelligence and Deep Learning

October 2020 - Present

- Working on research projects and involved in research discussion sessions on AI and DL

Instructor InCharge, Center for Technical Education, BITS Goa

September 2020 – Present

- Teaching and managing 2 student run courses teaching introductory robotics: robotic control and automation, electronics and mechanical design for robotics. Responsibilities include designing the course structure and material, engaging online lectures, designing and correcting assignments and mentoring for the project

Instructor, Quark Summer Technical Projects, 2020

May 2020 – June 2020

- Designed and prepared the course structure, material and assignments for a class of about 30 students working on a project on implementing autonomous navigation in Gazebo. Worked with a team of 3 instructors.

Student Mentor, Peer Mentorship Programme, BITS Goa

Aug 2019 – May 2020

- Helped a group of 7 students adjust to the routine, academics, etc. in their initial days of college