AADHITHYA IYER

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EDUCATION

Visvesvaraya National Institute of Technology,Nagpur,India	2018- Present
BTech in Electrical and Electronics Engineering	CGPA: 8.76/10 (till 6th sem)
Kendriya Vidyalaya Bhandup,Mumbai	2018
Class XII; Central Board of Secondary Education,India	95.8%
Kendriya Vidyalaya Bhandup	2016
Class X; Central Board of Secondary Education,India	CGPA: 10/10

RESEARCH EXPERIENCE

Movement Generation and Control Group, Max Planck Institute for Intelligent Systems

Tubingen, Germany,	Lab's Webpage
Research Intern	March 2021-July 2021
Guest Researcher - Advisors:Dr.Majid Khadiv, Dr Ludovic Righetti	July 2021 - Present

- **Project 1)** Working on a Two-stage Online Reinforcement Learning approach for going from a single demonstration trajectory to a robust policy that can be deployed on a Quadruped Robot(Solo12) for multiple high-dynamical motions and devising Robust Sim2Real Transfer approach.
- **Project 2)** Working on Visuomotor learning for Quadruped Robot(Solo12) to learn agile parkour like motions.

PUBLICATIONS/PATENT

[Patent]Navigation system for a vehicle and method for navigation	Link/Video
CBR Ref No.201921049473 in Computer Science	Published Date : 04/06/2021

Rohit Lal, Arihant Gaur, **Aadhithya Iyer** , Ritik Agrawal, Mohammad Abdullah, Shital Chiddarwar, ***Open-Set Multi-Source Multi-Target Domain Adaptation***, **Accepted at NeurIPS 2021,Workshop on Pre-Registration in Machine Learning**.   Paper/Video/Poster

PROJECTS

Open-Set Multi Source Multi Target Domain Adaptation

IvLabs:VNIT Nagpur   October 2021-Present

- Designing a Novel setting for domain adaptation to multiple target domains from multiple source domains, without knowing exact label sets of the target domain.

Autonomous Stair Alignment Robot   Link

IvLabs:VNIT Nagpur   September 2020 - January 2021

- Two stage mechanism to learn an optimal staircase alignment policy.
- Trained a model to obtain segmented images (UNet),aimed to devise a custom made gym environment and simulation environment in Gazebo.

Custom OpenAI-Gym environment for Quadrupedal Robotic walking using Deep-RL

IvLabs:VNIT Nagpur   December 2020-January 2021

- Collaborated for developing Linear walking Policy for Quadruped robot in simulation.
- Custom Pybullet-gym Environment and trained using Reinforcement Learning with stable-baselines3.

Deep-Reinforcement Learning   Link

IvLabs:VNIT Nagpur   February 2020 to June 2020

- Trained an agent to solve the OpenAI-gym CartPole-v0 environment using Value-Based methods like DQN and Policy Gradient approaches like REINFORCE and Actor-Critic.

- Results were compared graphically.

Tabular Reinforcement Learning [Link]
IvLabs:VNIT Nagpur   April 2020 to May 2020

- Trained an agent to find the optimal policy in a custom-made gridworld-CliffWorld using TabularRL algorithms.Trained using SARSA, Q-learning and Expected SARSA from scratch and compared their results graphically.

Navigation system for a vehicle and method for navigation [Link]
IvLabs:VNIT Nagpur   June 2019 to December 2019

- All commands of Google Maps in a single device.
- Uses no Custom made app, but just the free voice pack feature of Google Maps which makes it easy to use.Used an Arduino ProMini Microcontroller and the directions were displayed on the MAX7219 LED Display.

Generative Adversarial Networks [Link]
IvLabs:VNIT Nagpur   January 2021

- Trained a WGAN to generate images of handwritten digits from scratch.Good accuracy was obtained in generating the images.

Health Estimation of an Electrical Machine Using an Optimal Estimator [Report]
BTech Thesis, Guided by Dr.Ashwin Dhabale   July 2021 - Present

- Developing an estimator for the health of a three phase distribution transformer using estimation techniques and Artificial Neural Network, as a part of my Bachelor's Thesis.

TECHNICAL SKILLS

Generic	Reinforcement Learning,Deep Learning, Legged Locomotion, Electronics
Languages	Python, C++, C, LaTeX, SQL
Software	MATLAB, Gazebo, PyBullet, Isaac-Gym, Arduino, Android Studio,Multisim
Libraries	PyTorch, Git, OpenAI-Gym, OpenCV, Robot Operating System , TensorFlow-1, NumPy

COURSEWORK

Computer Science

- Neural Networks and Deep Learning Link, •Improving Deep Neural Networks:Hyperparameter tuning and regularisation Link, •Convolutional Neural Networks Link, •Reinforcement Learning - Deepmind, •CS234-Stanford •Reinforcement Learning -NPTEL, •**CSL210** Data Structures

Mathematics

- **MAL101,MAL102** Single and Multivariate Calculus and Linear Algebra • **MAL201** Integral Transforms and Partial Differential Equations • **MAL205** Numerical Methods and Probability Theory • **MAL407** Statistics and Optimisation techniques

ACHIEVEMENTS

- Prototype Selected for second stage in National Innovation Contest by Institution's Innovation Cell by Government of India.
- Received scholarships from KVS for my position in the top 1.5% of KVS Students in the All India Senior School Certificate Examination conducted by CBSE and securing 10 CGPA in the All India Secondary School Examination conducted by Central Board of Secondary Education.

EXTRACURRICULARS

- Core Member- IvLabs (July 2019-present)   [Link]
- Secretary- IEEE VNIT Student Chapter (Bombay Section)(July 2020-present)   [Link]
- Mentored projects on Reinforcement Learning and made significant contributions to open source community.   [Link]