Aadil Hayat

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EDUCATION

Indian Institute of Technology, Kanpur, India

- M.Tech. in Computer Science & Engineering — Jul 2017 – Present
  - Thesis: Multi-Agent Diverse Generative Adversarial Imitation Learning
  - Supervisor: Prof. Vinay P. Namboodiri
- B.Tech. in Aerospace Engineering — Jul 2013 – Jun 2017
  - CPI: 8.4/10
  - Minors: Artificial Intelligence & Computer Systems

MASTERS THESIS

Multi-Agent Diverse Generative Adversarial Imitation Learning — Jul 2017 – Present

- Implementing Generative Adversarial Networks for Imitation Learning on complex RL environments
- Developing Multiple Policy Generator architecture for learning diverse ways to perform a particular complex task
- Preliminary results on Mujoco Hopper-v1 environment show two agents hopping at different angles

RESEARCH PROJECTS

- **Transfer Learning using RL agent** — Jan 2017 – Jun 2017
  - Implemented and trained Asynchronous Advantage Actor-Critic Method based agent for DOOM environment
  - Used the trained Convolutional layers of the agent to perform Computer Vision tasks like object detection,etc.
- **Helicopter Control using Deep Reinforcement Learning** — Jul 2016 – Nov 2016
  - Implemented continuous control using Actor-Critic based Deep RL algorithm in Keras
  - Trained a helicopter agent to learn different tasks from Reinforcement Learning Challenge 2014 environment
- **Deep Learning for Population Genetics** — May 2016 – Jul 2016
  - Implemented clustering of genetic data (allele-frequency matrix) using Auto-Encoders using Keras on HPC cluster
  - This algorithm is used for deciphering organization of populations in space and time using genetic data
- **Dynamic Video Synopsis** — Jan 2016 – Apr 2016
  - Implemented optimal reduction of spatial-temporary redundancies in videos
  - Implemented iterative graph-cuts and loopy belief propagation for MRFs formulation of optimization problem

DEVELOPMENT PROJECTS

- **IITK Video Surveillance** — Jan 2016 – Apr 2016
  Implemented Object Detection and Classification using bad-of-visual-words model using SIFT descriptors
- **Chatbot** — Aug 2015 – Nov 2015
  Implemented Google's Neural Conversation Model for chatbot conversations using OpenSubtitles dataset
- **Mozart Oz Kernel Interpreter** — Aug 2015 – Nov 2015
  Developed interpreter for Kernel language of Mozart Oz by parsing AST form of code and closure of functions
- **Project *SPORADA*** — Dec 2014 – Jan 2015
  Developed popular content exploration mobile application for sporadic data connection with incremental updates
- ***It's Placement Time*** — Aug 2014 – Nov 2014
  Developed 3D game using OpenGL API for the comical picturisation of undergraduate placements
- **Online Judge** — May 2014 – 2014
  Developed a web application for online programming competitions with administrative tools and intuitive UI/UX

TECHNICAL SKILLS

Programming Languages: C, C++, Java, PHP, Python, JavaScript, SQL, Matlab
Frameworks and Libraries: TensorFlow, Keras, Dockers, OpenGL, Scikit-Learn, Hadoop, GIT

RELEVANT COURSES

Quantum Computing	Probabilistic Machine Learning	Visual Recognition	Computer Vision
Natural Language Processing	Computer Systems Security	Machine Learning	Computer Graphics
Data Structures	Programming Languages	Algorithms	Database Systems

POSITIONS OF RESPONSIBILITY

- **Machine Learning Team Mentor**, IITK New York Office internship — May 2017 – Jul 2017
- **Teaching Assistant**, Fundamentals of Computing course — Aug 2017 – Nov 2017
- **Coordinator**, Programming Club IIT Kanpur — Apr 2015 – Mar 2016
- **Academic Mentor**, Fundamentals of Computing course — Aug 2014 – Apr 2015

AREAS OF INTEREST

Deep Reinforcement Learning, Generative Models, Quantum Machine Learning