

ARPIT GARG

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EDUCATION

University of New Mexico (UNM)

Master of Science in Computer Science; GPA 4.0/4.0

New Mexico, USA

Jan 2018 – Dec 2019 (Expected)

Indian Institute of Technology, Roorkee

Bachelor of Technology (B.Tech.) in Civil Engineering

Roorkee, India

July 2010 – May 2014

PROJECTS

Moving Obstacle Avoidance with Deep Reinforcement Learning (RL), Tapia Lab

Nov 2018 - Ongoing

- Trained a neural network using A3C Policy Gradient algorithm, to enable a mobile robot navigate through environments with moving obstacles using 2D LiDAR sensory data.
- Scaled up the algorithm with the help of Distributed TensorFlow, increasing the global training steps per second from 15 on a MacBook Pro to 1300 on 4 nodes with 16 CPU cores each.

Solving Board Games Using Deep RL, Personal Project

July - August 2018

- Implemented state-of-the-art RL algorithms: Q-Learning (Double DQN), Policy Gradient and AlphaGo Zero by Google DeepMind to solve the games Connect-4 and Tic-Tac-Toe on multiple board sizes.
- Performance was evaluated by playing against a perfect playing minimax bot with 5% error. More than 90% wins was considered as convergence.
- The code is written in Python and can be found at <https://github.com/kirarpit/connect4>.

Built LOBO-C Compiler, UNM

Jan - April 2018

- Built a standalone program -- written in C++ -- that reads a legal LOBO-C (a custom C like language) file and generates MIPS assembly code.
- Given a LOBO-C file as input, the program compiles the file by running following operations: Lexical Analysis, Parsing, Type Propagation, Constant Folding and Code Generation.
- The code can be found at <https://github.com/kirarpit/compiler-construction>.

Web Push Notifications, MySmartPrice

2016

- Implemented a system to capture web-push notification subscriptions across the site using JQuery.
- Built and scaled a system, to be able to send notifications to over 650,000 daily active users and analyse their interactions with the website.

WORK EXPERIENCE

Tapia Lab, UNM

Albuquerque, USA

Research Assistant

July 2018 - Present

- Applying Deep RL methods to solve problems in Robotic Motion Planning.

MySmartPrice Web Technologies Pvt. Ltd.

Hyderabad, India

Senior Product Engineer

June 2014 – July 2017

- Contributed to the company's PHP code base architecture and development, website security, and system administration.
- Designed and implemented server architecture, business logic and data storage solutions at the back-end.
- Collaborated with the front-end team to take features live on production.

LEADERSHIP EXPERIENCE

Founded: Coding Interview Club, UNM

July 2018

- Started a club to help students practice and get better at cracking the coding interviews.
- Organized weekly meetings in which students solved problems on whiteboard and ran mock interviews.

SKILLS

- Programming Languages(Expert) – Python, C++, PHP.
- Related Skill Sets – Machine Learning, Software Engineering, Back-end Web Development, Linux.
- Database Systems – MySQL, Redis, AWS Redshift, AWS RDS.