Shyam Sundar Murali Krishnan

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ACADEMIC QUALIFICATION:

PhD in Computer Science, University of Oklahoma, Expected graduation: **December 2024.** GPA**: 3.45**
Courses enrolled: Parallel Programming, Adv. Computer architecture, Machine Learning, Database Management Systems

Master's in Computer Science, University of Oklahoma, Graduation: **December 2020** GPA**: 3.4**
Courses enrolled: Artificial neural network evolution, Scientific computing, Cryptography, Text analytics, Compilers, Algorithm analysis, Intelligent Robotics.

Bachelor's in Computer Science and Engineering, Thiagarajar College of Engineering, Graduation: **May 2018** GPA: **3.8**
Courses enrolled: Data structures, Operating Systems, Computer Architecture, Big Data analysis, Distributed Computing, Artificial Intelligence, Service Oriented Architecture, Algorithm analysis, Software Engineering, Theory of Computation, Network on chips.

TECHNICAL SKILLS:

Languages: C, Java, Python, SQL, Matlab, SAGE.
Database: MYSQL, ORACLE
Software, tools, cloud: Android studio, Eclipse, Weka, Dia, Gazebo, ROS.
Web technologies: HTML, CSS, PHP.
Libraries/ framework: Scikit, Numpy, Pandas, Matplotlib, Tensorflow, NLTK, Stanford NER, Open AI gym.

PROFESSIONAL EXPERIENCE:

Graduate Teaching Assistant (Introduction to Robotics), University of Oklahoma, August - December 2021

- Guiding students in working with ROS and Gazebo and simulating turtlebots into their environments.
- Grading weekly assignments and project works.

Graduate Teaching Assistant (Discrete Structures), University of Oklahoma, Aug 2020 - Current

- Guiding students in understanding various concepts in Discrete mathematics like Logic, Inductions, Proofs, Permutations, Combinations etc…
- Grading weekly assignments, Mid- Terms, and final exams.

THESIS:

Reinforcement Learning for Continuous Control (Domain: Machine Learning)

- Previous works used Stochastic Synapse Reinforcement Learning (SSRL) and Deep Deterministic Policy Gradient (DDPG) on different environments separately to understand the behaviour of the algorithms.
- In this thesis, a comparison study is made on these algorithms by using them on the same continuous environments and observing how each algorithm behaves on each environment and what kind of strengths and weaknesses can be inferred by comparing the algorithms.
- The algorithms are made to run on two continuous environments, namely mountain car continuous and delayed reinforcement learning pendulum.
- Based on the results it can be inferred that overall SSRL performs consistently even though it does not gain rewards like DDPG whereas DDPG performs inconsistently but certain rewards it earns are higher than those of SSRL.
- In the case of the delayed-reinforcement pendulum environment both algorithms do not learn well, showing their weakness towards environments whose terminal state is not definite.

PROJECTS:

Redactor and Un-redactor (Python, NLTK)
Implemented a Name entity recognizer model to identify the sensitive names from the document and redact it. Also, to un-redact and get the original document, classification was used to detect the names.

Autonomous Robotic Tour Guide (ROS, Gazebo)
Accomplished the task of providing a tour to visitors to the Devon Energy Hall (OU), and to engage with challenges that robots face in many missions, such as task planning, path planning, and obstacle avoidance. The system consists of a Turtlebot whose program architecture is a hybrid deliberative-reactive one. This approach works well and accomplishes its goals with great success, but improvements to system reliability when presented with complex obstructions could be made.