Aditya Mehrotra

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EDUCATION

Worcester Polytechnic Institute – Worcester, MA, USA   May 2023
Master of Science in Robotics Engineering   4.0/4.0
Coursework: Deep Learning, Computer Vision, Artificial Intelligence, Robot Dynamics, Controls

Manipal Institute of Technology – Manipal, India   Nov 2019
Bachelor of Technology in Mechanical Engineering, Minor Specialization in Design

SKILLS

Robotics: PyTorch, TensorFlow, OpenCV, MMDet, MMCV, Open 3D, Open Gym, Eigen, Sci-Kit Learn
Programming: C++, Python, MATLAB, Java, C, ROS, Linux, Git, Latex
Simulation: Gazebo, RViz, Unity, Webots, CoppeliaSim, AMBF, Blender, PyGame
Electronics: Raspberry Pi, Arduino, Nucleo, ATmega8, NI MultiSim, Eagle
Languages: English (Fluent), French (Intermediate A2), Spanish (Intermediate A2), German (Elementary A1)

INDUSTRY EXPERIENCE

MathWorks – Natick, USA   May 2022 - Present
Software Intern   Controls Applications and Charting
- Prepared Requirement and Functional Design Specifications for a high-priority fuzzy clustering enhancement (Gustafson-Kessel: GK algorithm)
- Developing and testing the GK algorithm for the Fuzzy Logic Toolbox in MATLAB

Boston Scientific – Worcester, USA   Jan - May 2022
Graduate Research Assistant   PracticePoint, WPI
- Developed cartesian velocity control for KUKA LBR iiwa on MATLAB and ROS communicating with Java Sunrise controller

Miko – Mumbai, India   Apr 2021 - Aug 2021
Robotics Engineer – I   Robotics Division
- Simulated robot motion and modules with multi-threading for an autonomous social robot on Webots
- Implemented PID control and Odometry on the robot, added modules and maintained a Java-based utility software

BaseApp Systems – Delhi, India   Mar - Apr 2021
Junior Robotics Engineer   Startup for Embedded Systems & Warehouse Robotics
- Pioneered Robotics Navigation at the firm in ROS running on Raspberry Pi 3
- Prepared test guided path designs for Autonomous Guided Vehicles in warehouse environment

École Polytechnique Fédérale de Lausanne – Lausanne, Switzerland   Sep 2019 - Aug 2020
Visiting Research Assistant   Mobots Group
- Explored and developed Image Object Detection techniques for a tangible programming platform
- Created an inexpensive Maker-based Educational differential-drive Robot, published multiple papers

PROJECTS

Video Instance Segmentation (VIS) with Attention   Mar - May 2022
- Explored Attention mechanisms with MaskTrack R-CNN and ObjProp to improve VIS on the YouTube VIS Dataset

Incremental Structure from Motion   Sept - Dec 2021
- Calibrated camera intrinsic parameters, implemented feature tracking, estimation of the camera essential matrix
- Implemented Triangulation, PnP algorithm, bundle adjustment optimization to create a sparse 3D reconstruction of scene with Open3D

Mini projects   Dec 2021- Present
- Exploring parallelism on GPU cluster
- Generated fake images using a GAN architectures on MNIST, CIFAR-10 datasets.
- Implemented a Deep Reinforcement Learning architecture for 2D cartpole control

Machine Learning for Computing Education   Sept - Dec 2021
- Preprocessed dataset using the Sci-Kit Learn & ProgSnap2 library and extracted relevant features
- Modeled students' cognitive knowledge by developing regression models and predicted performance

PUBLICATIONS

Mehrotra, Aditya, et al. "***Accessible Maker-Based Approaches to Educational Robotics in Online Learning.***" IEEE Access 9 (2021): 96877-96889.| doi.org/10.1109/ACCESS.2021.3094158

Mehrotra, Aditya, et al. "***Introducing a Paper-Based Programming Language for Computing Education in Classrooms.***" Proceedings of the 2020 ACM Conference on Innovation and Technology in Computer Science Education. 2020.
dl.acm.org/doi/pdf/10.1145/3341525.3387402