Narendiran Gopinathan Chembu

cgnarendiran@gmail.com (IN: +91 8754 997789) **Robotics / Machine Learning Engineer** | **Bangalore, India**

EDUCATION

University of Amsterdam (UvA)
Masters in **Artificial Intelligence**
2018-2020,
Amsterdam, The Netherlands

Indian Institute of Technology Madras (IITM)
B. Tech in **Mechanical Engineering**
(minor: **Industrial Engineering**)
2013-2017, Chennai, India

LINKS

Portfolio website
Github
LinkedIn

FAMILIAR FRAMEWORKS

PyTorch, TensorFlow, OpenCV, ROS, ROS2, Nvidia Isaac, Unity3D, Git, Docker, Pandas, Flask, PySpark

LANGUAGES

C++, Python, C#, Java, MATLAB

COURSES

Machine Learning, Deep Learning, Computer Vision, Natural Language Processing, Information Retrieval, Data Structures and Algorithms, Reinforcement Learning, Multi-agent systems, and Game theory, Calculus, Linear Algebra & Probability Theory

PUBLICATIONS

Journal "Aqueous Dispersions of Lipid Nanoparticles Wet Hydrophobic and Superhydrophobic Surfaces", 2017, Soft Matter, Royal Society of Chemistry

Conference "An approach for including evaporation in a model for predicting spray penetration", 2016, 18th Annual Conference on Liquid Atomization and Spray Systems (ILASS), Chennai, India

WORK EXPERIENCE

NewSpace Research and Technologies | **Robotics and AI Engineer**
Apr' 2021 - Present (9 months) | Bangalore, India

- Developed an MVP of fixed-wing flight stack (R&D) in less than three months, that includes: autonomous control in offboard mode of PX4 (SITL, HITL, and real-life), robust simulation with flight dynamics in Gazebo & Unity3D, decentralized collision avoidance algorithms (RVO2), and a communication module with ROS2 & ROS1 bridge
- Built an in-house Ground Control Station software for complex mission planning, obstacle/geofence building, path planning, and status monitoring using PyQt5

CBoost | **Robotics and AI Engineer**
Oct' 2020 - Jan' 2021 (4 months) | Breda, The Netherlands

- Developed an autonomous robot (Pixie, 4-wheeled drive, Jetson AGX) from scratch in Nvidia Isaac SDK with custom stereo visual odometry (Intel D415) for localization, AprilTag relocalization, obstacle avoidance, and dynamic goal in the span of two months
- Achieved an 0.87 IoU score on a bean field dataset (proprietary) by training a SegNet and HoughCNet in tandem for crop-row detection pipeline in production

ZyLAB | **Machine Learning Research Engineer** (Thesis project)
Nov'2019 - Aug' 2020 (10 months) | Amsterdam, The Netherlands

- Determined the efficient loss-centric method in unsupervised domain-adaptation of a pre-trained transformer (BERT) for entity recognition; performance gain of 0.2 F1 score; also contributed an extensively pre-processed Enron email dataset and annotation set

CtCue | **Machine Learning Intern**
Jun' 2019 - Jul' 2019 (2 months) | Amsterdam, The Netherlands

- Built a generative autoencoder (s2s LSTM) tool for synthesizing Electronic Health Records (EHRs) resulting in 0 waiting-time of confidential data acquiring for testing query pipeline

UvA | **Teaching Assistant** (Course: Computer Vision/ Image Processing, Bachelors AI)
Mar' 2019 - May 2019 (3 months) | Amsterdam, The Netherlands

- Assisted in programming assignment creation and evaluation in MATLAB & Python
- Provided personal guidance with a facetime of 8 hrs/week for the students

IITM | **Project Associate** (project: Embodied Cognition, sponsored by the Defense Research Development Organisation (DRDO), India)
Aug' 2017 - May 2018 (10 months) | Chennai, India

- Solely fabricated the perception-guided robot arm-grasping system on the Moveit! stack of ROS as an atomic task and created a simulation env in Gazebo for algorithm (RL) testing

Center For Innovation (student-run org. in IITM) | **Software Team, Abhiyaan**
Aug' 2016 - Aug' 2017 (12 months) | Chennai, India
(part of the Institute robotics team; qualified 13th among 34 global teams in the Intelligent Ground Vehicle Competition - IGVC 2017, Michigan USA)

- Implemented a custom pure-pursuit path planner that can handle sharper turns for a differential drive; also worked on EKF pose estimation with wheel encoders, GPS & IMU
- Designed and simulated the robot in Gazebo to test obstacle avoidance, SLAM, and lane-detection vision algorithms thus reducing manual testing times by 75%

VOLUNTEERING AND AWARDS

- **Avanti, NGO** (Oct 2013- June 2014): Mentored 50+ underprivileged students at Jawahar Navodaya, Pondicherry (11th grade) focussed on cracking Joint Entrance Examination and overall academic excellence
- Awarded the coveted **INSPIRE award** (Innovation in Science Pursuit for Inspired Research) consecutively for two years 2009 and 2010 by the Department of Science and Technology (DST), India