Narendiran Gopinathan Chembu

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

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 (4 months) | Bangalore, India

- Developed an MVP of fixed-wing flight stack (R&D) in less than three months, that includes: autonomous control using *rosplane* 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

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, april-tag relocalization, obstacle avoidance and dynamic goal in the span of two months
- Achieved a 0.87 IoU score on a bean field dataset (proprietary) by training a SegNet and HoughCNet in tandem for crop-row detection pipeline

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 3.2 F1 score
- Contributed an extensively pre-processed Enron email dataset and annotation set valuable for retrieval and extraction testing purposes at ZyLAB

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
- Created generic to specific tunable results through tempered softmax in the tool

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 the crucial navigation stack: localization through sensor fusion by Extended Kalman Filter (EKF), enabling obstacle-avoiding GPS waypoint navigation
- Designed and simulated the robot in Gazebo to test 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