ANJALI DHABARIA

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EDUCATION

Georgia Institute of Technology, Atlanta, GA | GPA: 3.87/4   Expected Graduation: Dec 2020
Master of Science in Electrical and Computer Engineering

Shri Govindram Seksaria Institute of Technology and Science, Indore, India | GPA: 8.83/10   May 2018
Bachelors in Electronics and Telecommunication Engineering

TECHNICAL PROFICIENCIES

Languages:	C, Python, C++, Java, JavaScript
Frameworks:	PyTorch, Torch, AngularJS, NodeJS
Software:	MATLAB, ROS, OpenCV, CMake, OpenGL, OpenMP, Point Cloud Library (PCL)
Hardware:	Raspberry Pi, Atmel MCU, ESP 8266, Arduino, LiDAR (Velodyne)
Databases:	MySQL
OS:	Linux, Windows
DevOps:	Jenkins, Docker, Jira
Version Control:	Git

COURSEWORK

Computer Vision, Statistical Machine Learning, Advanced Computer Vision and PDEs, Deep Learning, Advanced Programming Techniques, Networked Control, Linear Systems and Controls, Sensor Networks

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EXPERIENCE

Mapping and Localization Software Engineer Co-op   Jun 2020 - Aug 2020
Torc Robotics, Blacksburg, Virginia
Researched through effective representation of massive 3D point clouds, geospatial data and LiDAR data analyzing tools to conceptualize, design and develop 3D Lidar Base Maps for autonomous driving. Processed fleet data to incrementally build the map. Worked closely with vision team to determine if needs are met.
Key Accomplishments:
- Developed map which is a set of geo-referenced derived octomaps. Incorporated GIS data in the octrees required to split and render 3D maps.
- Programmed streamline process of dynamically building map from velodyne packets to storing them effectively on disk using C++.
- Designed Rviz plugins for intermediate visualizations of the 3D map grid and centers.
- Integrated the code with planning and mapping software stack.
- Collaborated and coordinated with senior engineers and leadership teams to define and realize shared objective.

Associate Software Engineer, Full-time   Jul 2018 – Jul 2019
Optum, United Health Group, India
Optum Intelligent EDI Clearing House (IEDICH): Responsible for developing and enhancing APIs to allow providers, facilities and payers to manage the claim lifecycle following Agile Scrum methodologies.
Key Accomplishments:
- Clearing House Backend: Developed backend service facilitating providers to check for Medicare Eligibility.
- Clearing House Portal: Developed the front end for the services provided by the clearing house.
- Payer Management: Developed and integrated payer management system so that payer gets responses, claims and remittances in specified formats. Eased claim processing and reduced claim lifecycle.
- Unit testing in Java and JavaScript.
- Worked with other teams to identify risks and dependencies.

ACADEMIC PROJECTS	**Robotics Perception and Learning Lab,** GT	Present 2020

- Researching efficient technique to model uncertainties associated with semantic segmentations.
- Develop a framework that accounts for these uncertainties while developing costmaps from semantic segmentations and improve performance.

3D Object Detection, GT — Deep Learning Course, Present 2020

- Experimenting with 3D object detection techniques like VoxelNet and PointPillars and dense fusion method for LiDAR and RGB features.
- Additional Learnings: Optimization, 2D and 3D CNNs, PointNet, PointNet++, SplatNet, LSTMs, RL Basics, GANs and VAEs.

Real-Time Scene Understanding using ENet, GT — Statistical ML Course, Apr 2020

- Generated strong foundations for ENet architecture and branching for solving semantic segmentation, instance segmentation and depth estimation tasks in parallel, reducing memory footprint and improving computational time to 21 fps.
- Implemented real-time efficient branched ENET architecture with custom losses for above tasks in PyTorch
- Trained the neural network, finetuned hyperparameters and incorporated Tensorboard for visual analysis.
- Implemented and compared results with traditional machine learning algorithms like random forest to demonstrate the effectiveness of network.

Vision-based Simultaneous Localization and Mapping, GT — Special Problem Course, Apr 2020

- SLAM: Extended Kalman filter-based robot and landmark state estimation using monocular camera with 6 degree of freedom, 1-point RANSAC for outlier rejection and inverse depth parameterization.
- Feature detection, extraction and matching method for feature initialization and data association used in SLAM.
- Loop Closure: Fast VBoW loop-closure using sequence visual word vectors formed by dynamically segmenting robot's trajectory into image sequences.
- Implemented math involved in structure from motion model and for generating/matching sequences in MATLAB effectively.

Style Transfer, GT — Computer Vision Course, Nov 2019

- Built on top of Style transfer algorithm to transfer artistic styles to distinct features detected in the input video using convolutional neural networks.
- Developed algorithm that transfers styles from a bank of style images to different objects recognized and segmented in input video using Mask RCNN.
- Additional Learnings: Segmentation, Homography, Epipolar geometry, Projection, Camera Calibration, Stereo, category, action recognition, motion and optical flow, background subtraction and tracking.

Design and Implementation of Autonomous Robots, GT — Special Problem Course, Nov 2019

- Implemented an autonomous mobile robot using a LiDAR and integrated Hector SLAM, navigation methods like DWA and TEB and trajectory synthesis.
- Implemented image based autonomous robot solution using vision-based navigation strategy and a global planning method with kinematic and dynamic constraints.

Leader-based SLAM for Search and Rescue, GT — Networked Control Course, Nov 2019

- Used multi-agents to search through the post-disaster environment to build a map increasing accuracy and robustness using Voronoi regions.
- Leader-follower with static topology was used to lead the rescue team to the identified spots.

OTHER EXPERIENCE	**Tutor, Georgia Tech Athletic Association, GT**	Present, 2020

- Courses - MATH 1113: Precalculus, MATH 1551: Differential Calculus, MATH 2551: Multivariable Calculus
- Tutoring GT student athletes to help them enhance understanding of course material and solve difficulties and help them achieve their academic goals.