Shasa Antao

shasaantao@gmail.com | (857) 354-9800 | linkedin.com/in/ShasaAntao | shasaantao.github.io/

EDUCATION

CARNEGIE MELLON UNIVERSITY - SCHOOL OF COMPUTER SCIENCE — Pittsburgh, PA
Master of Science in Robotic Systems Development — May 2021

Selected Coursework
Computer Vision, Geometric methods in Vision, SLAM, Machine Learning, Visual Learning & Recognition, Computer Graphics, Robot Autonomy, Robot Mobility, Systems Engineering, Advanced topics in Robotics Business

CAPSTONE PROJECT: AUTONOMOUS DRIVING FOR ADVERSE PERCEIVED TERRAIN

- Project advised by John Dolan, Dimitrios Apostolopoulos and David Held
- Worked on a $1/5^{th}$ scaled vehicle with a custom built enclosure that can perceive wet road conditions, localize itself, and autonomously plan and navigate extreme traversals
- Implemented geometry-based puddle detection algorithm using polarization filters on a ZED stereo camera obtaining image features from disparity map and a Gaussian Mixture Model (GMM) classifier
- Setup working compute environment on NVIDIA Jetson Xavier, on-board computer for the autonomous vehicle

PROJECT: FAST AND ACCURATE CAMERA POSE ESTIMATION IN DYNAMIC SCENES

- Assisted in development of a geometry based method that uses information from an instance segmentation mask to perform camera pose estimation on the object level and subsequently chooses the majority of the estimated camera poses as the final camera pose.

AMRITA UNIVERSITY — Bangalore, India
Bachelor of Technology in Mechanical Engineering — Aug 2013 - May 2017

CAPTSTONE PROJECT: 3-REVOLUTE ORIENTATION SENSING MECHANISM

- Conceptualized passive balancing using counterweights in a prototype of a novel orientation sensing mechanism
- Designed, fabricated, and tested prototypes to validate the theory of the manipulator concept

WORK EXPERIENCE

ALERT INNOVATION — North Billerica, MA
Machine Vision Intern — Jun 2020 - Aug 2020

- Developed a "Product dimensioning" algorithm in Python using point cloud information from a Time-of-Flight camera for an automated warehousing application.
- Created approach that trims the point cloud to a specific region of interest, uses RANSAC to calculate the base plane equation of the tote, and uses Principal Component Analysis (PCA) to establish the axes of measurement.

ROBERT BOSCH — Bangalore, India
Product Development Engineer — Sep 2017 - Jun 2019

- Team lead for the development of a Deep Learning based Aerial Crop Protector to identify and accurately spray weeds. Applied business model innovation and customer development techniques in the project
- Founding member of an internal start-up incubated at Bosch using a customized accelerator program from University of California, Berkeley

PUBLICATIONS

- "Applications of a 3-Revolute Orientation Sensing Mechanism (3-ROSM) in Controlling a Camera"; ***Antao, S. A.*** , Nair, V. S., Chittawadigi, R. G., **5th IFToMM International Symposium on Robotics & Mechatronics (ISRM2017), Sydney, Australia** ,(2017)
- "Passive Balancing of a Novel 3-R Orientation Sensing Mechanism"; ***Antao, S. A.*** ,Vishal, S., Rajan, S., Nair, V. S., Chittawadigi, R. G., **8th Asian Conference on Multibody Dynamics (ACMD 2016), Kanazawa, Japan** ,(2016)

SKILLS

Programming: Python • C++ • Matlab • OpenCV • Open3D • Pytorch • scikit-learn • ROS
Project Management: Git • Jira • Confluence • Bitbucket
Software: SolidWorks • Fusion 360 • Eagle • Ultimaker Cura • Linux (Ubuntu, CentOS)
Languages: Japanese