Prashant Ganesh

Contact Information

University of Florida
Research and Engineering Education Facility (REEF)
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Education

University of Colorado, Boulder
Master of Science in Aerospace Engineering — Aug 2015 - May 2017

Anna University, Chennai, India
Bachelor of Engineering in Electrical & Electronics Engineering — Aug 2010 - May 2014

Professional Experience

University of Florida - REEF, Shalimar FL — Apr 2018 - present
Dept. of Mechanical and Aerospace Engineering
Assistant Engineer (Faculty)

University of Florida - REEF, Shalimar FL — Aug 2017 - Apr 2018
Dept. of Mechanical and Aerospace Engineering
Research Engineer

University of Colorado, Boulder CO — Jan 2016 - Aug 2017
Dept. of Aerospace Engineering
Graduate Research Assistant

University of Colorado, Boulder CO — Jan 2016 - Aug 2017
Dept. of Applied Mathematics
Research Assistant

AerX Labs, Bangalore India — May 2014 - May 2015
Junior Development Engineer
Intern

BMW, Chennai India — Sep 2014 - Dec 2015
Dept. of Applied Mathematics
Research Assistant

Indian Institute of Technology, Chennai India — May 2013 – Aug 2014
Dept. of Aerospace Engineering
Research Intern

Research Interest

Guidance, Control and Navigation of autonomous agents in GPS denied environment; Non-linear optimization; multi-agent cooperative navigation; visual odometry; localization; non-linear robust and adaptive control
Machine Learning: Citrus detection; Context Switching; Reinforcement learning

Publications

Journals

J1 A. Willis, **Ganesh, P.**, K. Volle, J. Cheng, K. Bring, "Volumetric Procedural Models for Shape Representation" Graphics and Visual Computing (2021)* (Pending revisions).

Conferences

C1 K. Volle, **Ganesh, P.**, T. F. Burks, S. S. Mehta, "Semi-Self-Supervised Segmentation of Oranges with Small Sample Sizes," 2020 ASABE Annual International Virtual Meeting (p. 1). American Society of Agricultural and Biological Engineers.

C2 Mehta, S. S., Rysz, M. W., **Ganesh, P.**, Burks, T. F. (2020). Finite-time Visual Servo Control for Robotic Fruit Harvesting in the Presence of Fruit Motion. In 2020 ASABE Annual International Virtual Meeting (p. 1). American Society of Agricultural and Biological Engineers.

C3 **Ganesh, P.**, K. Volle, A. Willis, K.M. Brink, "Three Flavors of RGB-D Visual Odometry: Analysis of cost function compromises and covariance estimation accuracy" IEEE/ION PLANS 2020, Portland.

C4 **Ganesh, P.**, Volle, K., Burks, T.F. and Mehta, S.S., 2019. Deep Orange: Mask R-CNN based Orange Detection and Segmentation. IFAC AgriControl 2019, 52(30), pp.70-75.

C5 Rysz, M., **Ganesh, P.**, Burks, T. F., and Mehta, S. S. (2019). Risk-averse Optimization for Improving Harvesting Efficiency of Autonomous Systems through Human Collaboration. IFAC AgriControl 2019, 52(30), 207-212.

C6 Mehta, S. S., Ton, C., Rysz, M., **Ganesh, P.**, Kan, Z., and Burks, T. F. (2019). On Achieving Bounded Harvest Times in Robotic Fruit Harvesting: A Finite-Time Visual Servo Control Approach. IFAC AgriControl 2019, 52(30), 114-119.

C7 Ramos, J. H., **Ganesh, P.**, Warke, W., Volle, K., and Brink, K. (2019, July). REEF Estimator: A Simplified Open Source Estimator and Controller for Multirotors. In 2019 IEEE National Aerospace and Electronics Conference (NAECON) (pp. 606-613). IEEE.

Invited Presentations/ Workshops

WS1 **Ganesh, P.**, REEF Estimator: Setting up autonomous multirotor infrastructure for research labs, December 11-13 2019, Departmant of Science and Technology, Department of Defense, Australia, Adelaide, Australia

Pr1 **Ganesh, P.**, Volle, K., Burks, T.F. and Mehta, S.S., 2019. Deep Orange: Mask R-CNN based Orange Detection and Segmentation, AgriControl 2019, December 4-6, Sydney, Australia

Pr2 **Ganesh, P.**, Rysz, M., Burks, T. F., and Mehta, S. S. (2019). Risk-averse Optimization for Improving Harvesting Efficiency of Autonomous Systems through Human Collaboration, AgriControl 2019, December 4-6, Sydney, Australia

Pr3 **Ganesh, P.**, Mehta, S. S., Ton, C., Rysz, M., Kan, Z., and Burks, T. F. (2019). On Achieving Bounded Harvest Times in Robotic Fruit Harvesting: A Finite-Time Visual Servo Control Approach, AgriControl 2019, December 4-6, Sydney, Australia

Pr4 **Ganesh, P.**, Ramos, J. H., Warke, W., Volle, K., and Brink, K. (2019, July). REEF Estimator: A Simplified Open Source Estimator and Controller for Multirotors. In 2019 IEEE National Aerospace and Electronics Conference (NAECON), Dayton, OH, USA

Grants & Contracts

G1 "Guidance Navigation and Control: Flight Laboratory Operations 2020", Air Force Research Laboratory, Munitions Directorate, Department of Defense, $ 1.01M 2015-2021. **(co-PI)**

G3 "Deciphering the Hidden Mechanisms in the Biomagnetic Response in Plants - Vision Systems Development for In Situ Plant Growth Monitoring", United States Department of Agriculture - Capacity Building Grants (CBG) Program (with Tuskegee University),$500K, 2019-2022. **(I)**

Programming & Software

C/C++; Python; Matlab/Simulink; OpenCV; ROS; LabView; LaTeX; Linux OS; AutoCAD; KiCAD; RTOS; Boost

Hardware Expertise

Multi-rotors; Crazyflie; Turtlebot; OptiTrack & Vicon Motion Capture System; Arduino micro-controller; PCB design and fabrication; STM Micro-controllers; Stepper Motor control