Prashant Ganesh

Contact Information

University of Florida
Research and Engineering Education Facility (REEF)
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Shalimar, FL 32579 USA

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github.com/prasgane

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

J5 Hendrikson K.,**Ganesh, P.**, Volle K., Buzaud P., , Brink K., Hale M., Decentralized Weapon-Target Assignment under Asynchronous Communications. AIAA Journal of Guidance, Control, and Dynamics . 2021; **In review.**

J4 Ramos J., Brink K.,**Ganesh, P.**, Hurtado J., UD Partial-Update Schmidt Kalman Filter. AIAA Journal of Guidance, Control, and Dynamics . 2021; **In review.**

J3 Roy D., Salehi B., Banou S., Mohanti S., Reus-Muns G., Belgiovine M.,**Ganesh, P.**, Bocanegra C., Dick C., Chowdhury K., Going Beyond RF: How AI-enabled Multimodal Beamforming will Shape the NextG Standard. Computer Networks. 2021; **In review.**

J2 Zhang J., **Ganesh, P.**, Volle K., Willis A., Brink K. Low-Bandwidth and Compute-Bound RGB-D Planar Semantic SLAM. Sensors. 2021; 21(16):5400.

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

Conferences

C11 Paul Buzaud, **Ganesh, Prashant**, Humberto Ramos, Kevin Brink. "Bagget-Filter" In ROSWorld 2021.

C10 Leslie E., Flint S., Briggs H., Anderson A., Appel G., Konig S., Bowen N., Foster C.,**Ganesh, Prashant**, and Ramos H. "Autonomous Capabilities to Facilitate Indoor Exploration by UAS." AIAA SciTech, 2021. **Accepted.**

C9 Leslie E., Flint S., Briggs H., Anderson A., Appel G., Konig S., Bowen N., Foster C.,**Ganesh, Prashant**, and Ramos H. "An Unmanned System for Persistent Surveillance in GPS-Denied Environments" AIAA SciTech, 2021. **Accepted.**

C8 **Ganesh, Prashant**, Kyle Volle, Paul Buzaud, Kevin Brink, and Andrew Willis. "Extrinsic calibration of camera and motion capture systems." In SoutheastCon 2021, pp. 01-08. IEEE, 2021.

C7 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.

C6 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.

C5 **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.

C3 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.

C2 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.

C1 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.**, **Ramos, J.**, REEF Estimator: Developing Autonomous Landing capabilities, March 2021, Department of Mechanical Engineering, United States Air Force Academy, Colorado Spring, USA

WS2 **Ganesh, P.**, REEF Estimator: Setting up autonomous multirotor infrastructure for research labs, December 2019, Department 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

C1 "Guidance Navigation and Control: Flight Laboratory Operations 2020", Air Force Research Laboratory, Munitions Directorate, Department of Defense, $ 1.01M 2015-2021. **(co-PI)**

C2 "Autonomous Vehicles Lab Operation", Air Force Research Laboratory, Munitions Directorate, Department of Defense, $ 1.16M 2015-2020. **(co-PI)**

G1 "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)**

Services & Professional Activities

Session Chair for the Navigation and Control session at the IFAC Conference on Sensing, Control and Automation Technologies for Agriculture held in Sydney Australia in December 2019
Technical Program Committee IEEE International Symposium on Local and Metropolitan Area Networks
Reviewer IEEE Conference on Decision and Control (CDC)
Reviewer Computers and Electronics in Agriculture
Reviewer PLOS ONE
Reviewer Journal of Franklin Institute

Programming & Software

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