Prashant Ganesh

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EDUCATION

UNIVERSITY OF COLORADO
MS in Aerospace Engineering
May 2017 | Boulder, CO

ANNA UNIVERSITY
BS in Electrical and Electronics Engineering
May 2014 | Chennai, India

LINKS

Github:// **prasgane**
LinkedIn:// **prashantganesh92**
Website:// **prashantganesh.info**

RESEARCH

MACHINE LEARNING
Model-Based & Model-Free RL
Automatic Target Recognition
Imitation Learning

ROBOTICS
Optimal Task Assignment
Decentralized Optimization
Target Tracking
Multi-Agent Coordination

GPS-DENIED AUTONOMY
Bayesian Filtering
Pose-Graph Optimization
Magnetic Anomaly Navigation
Information-Driven Guidance
Computer Vision

CONTROL SYSTEMS
Robust & Adaptive Control
Motion Model Learning
Switched Systems
Open-Source Robotics
(Software and Hardware)

SKILLS

PROGRAMMING
C++ • Python • Matlab • Simulink

TOOLS
ROS 1/2 • Docker • PX4
MAVROS • Gazebo • OpenCV

EXPERIENCE

EPISCI, AN APPLIED INTUITION COMPANY | Principal Engineer
Dec 2022 – Present | San Diego, CA

- Transitioned from academia to industry, applying deep research expertise in autonomous systems to deliver production-ready defense solutions across DARPA, USAF, ARL, and US Army programs.
- Served as technical and program lead for the Group 1 drone offering within the Drone Dominance portfolio, coordinating across customers, vendors, and an internal engineering team to deliver a full hardware-software solution from concept to production in under 6 months.
- Architected Axle 4, an onboard compute platform enabling autonomous single and multi-agent drone operations, expanding the product offering from a software-only solution to a full hardware-software stack, broadening accessibility through traditional DoW acquisition pathways.".
- Secured over $3M in SBIR funding, including a Phase III award — the highest SBIR tier, reserved for transition to fielded systems — through strategic business development and proposal writing.
- Led a team of 10 engineers developing production-grade algorithms in multi-agent collaborative autonomy, Model-Based Reinforcement Learning, and Bayesian state estimation.
- Organized and led technology demonstrations for commercial and defense customers, driving program visibility and follow-on contract opportunities.

UNIVERSITY OF FLORIDA | Principal Investigator + Research Faculty
Aug 2017 – Dec 2022 | Shalimar, FL

- Led the Autonomous Vehicles Lab, a joint AFRL and University of Florida academic research laboratory.
- Managed a $6M research program exploring multi-agent autonomy in contested environments, driving rapid prototyping and transition to industry and DoD partners.
- Grew lab research income by over $500K annually — more than doubling expenditures — by diversifying funding across ARL, USAFA, and NSF.
- Built and managed a multidisciplinary team of faculty, postdoctoral researchers, full-time engineers, and graduate and undergraduate students.
- Mentored over 40 graduate and undergraduate students and 20+ Air Force Academy cadets through summer internship programs.
- Developed research products in guidance, navigation, and control for aerospace and robotic systems, GPS-denied autonomy, and machine learning.
- Invited to present at IFAC Agricontrol, AFRL Summer Faculty Seminar Series, ION PLANS, and IEEE NAECON.

UNIVERSITY OF COLORADO | Graduate Research Assistant
Jan 2016 – Aug 2017 | Boulder, CO

- Developed a bio-inspired gust rejection system for multi-rotor platforms at the Bio-Inspired Perception and Robotics Lab.
- Implemented a robust controller in ROS and C++ on a quadrotor using Pixhawk PX4 and Crazyflie 2.0.
- Led a team of undergraduates in building an autonomous hovercraft from commercial off-the-shelf components.

AWARDS AND CONTRACTS

1. "Model Based Reinforcement Learning for Network Collaborative Weapons", Phase 3 SBIR, Air Force Research Lab, 2023–2026. **(PI)**
2. "RF-TOUCAN: RF-Guided Tactical AI Optimized Undercanopy Autonomous Networking", Phase 2 SBIR, DARPA, 2022–2024. **(Team Lead)**
3. "Information-Aware Multi-Agent Collaborative Automated Target Acquisition", Phase 1 SBIR, Air Force Research Lab, 2022–2023. **(PI on subcontract)**
4. "Multi-Agent Hybrid Reinforcement Learning for Safety", AFRL Munitions Directorate, **$550K**, 2023–2025. **(co-PI)**
5. "Information-Driven Trajectory Planning for Multi-Agent Target Tracking under Uncertainty", AFRL Munitions Directorate, **$425K**, 2023–2025. **(co-PI)**
6. "Guidance, Navigation and Controls: Autonomous Vehicles Lab Operation 2022", AFRL Munitions Directorate, **$2.1M**, 2022–2025. **(PI)**
7. "Network-Aware Coordination for Multi-Agent Systems with Limited Communication and Computation", AFRL Munitions Directorate, **$410K**, 2022–2025. **(co-PI)**
8. "Cadet Capstone Support for GPS-Denied Autonomy", United States Air Force Academy, **$250K**, 2022–2027. **(PI)**
9. "Guidance, Navigation and Control: Flight Laboratory Operations 2020", AFRL Munitions Directorate, **$1.01M**, 2020–2023. **(PI)**
10. "Autonomous Vehicles Lab Operation", AFRL Munitions Directorate, **$1.16M**, 2015–2022. **(co-PI)**

SELECTED PUBLICATIONS

[1] Z. I. Bell, R. Sun, K. Volle, P. Ganesh, S. A. Nivison, and W. E. Dixon. Target tracking subject to intermittent measurements using attention deep neural networks. *IEEE Control Systems Letters*, 2022.

[2] P. Buzaud, P. Ganesh, J. H. Ramos, and K. Brink. BagGetFilter: A simple user friendly interface to manipulate ROSbags, 2021.

[3] J. de Priester, Z. I. Bell, P. Ganesh, and R. G. Sanfelice. Multihyrl: Robust hybrid rl for obstacle avoid-ance against adversarial attacks on the observa-tion space. *Reinforcement Learning Journal*, 2024.

[4] B. Forsgren, K. Brink, P. Ganesh, and T. McLain. Incremental cycle bases for cycle-based pose graph optimization. *IEEE Robotics and Automation Letters*, 2022.

[5] P. Ganesh, K. Volle, T. Burks, and S. Mehta. Deep orange: Mask r-cnn based orange detection and segmentation. *IFAC-PapersOnLine*, 52(30):70–75, 2019.

[6] K. Hendrickson, P. Ganesh, K. Volle, P. Buzaud, K. Brink, and M. Hale. Decentralized weapon-target assignment under asynchronous communications. *Journal of Guidance, Control, and Dynamics*, 2022.

[7] Z. Lamb, Z. I. Bell, M. Longmire, J. Paquet, P. Ganesh, and R. Sanfelice. Deep nonlinear adaptive control for unmanned aerial systems operating under dynamic uncertainties. *arXiv preprint arXiv:2310.09502*, 2023.

[8] A. Pulido, K. Volle, K. Waters, Z. I. Bell, P. Ganesh, and J. Shin. Uncertainty-aware guidance for target tracking subject to intermittent measurements using motion model learning. *arXiv preprint arXiv:2402.00671*, 2024.

[9] J. H. Ramos, K. M. Brink, P. Ganesh, and J. E. Hurtado. Factorized partial-update schmidt–kalman filter. *Journal of Guidance, Control, and Dynamics*, 2022.

[10] J. H. Ramos, P. Ganesh, W. Warke, K. Volle, and K. Brink. Reef estimator: A simplified open source estimator and controller for multirotors. In *2019 IEEE National Aerospace and Electronics Conference (NAECON)*, pages 606–613. IEEE, 2019.

[11] J. H. Ramos, J. Shin, K. Volle, P. Buzaud, K. Brink, and P. Ganesh. Information-aware guidance for magnetic anomaly based navigation. *IEEE International Conference on Intelligent Robots and Systems*, 2022.

[12] A. R. Willis, P. Ganesh, K. Volle, J. Zhang, and K. Brink. Volumetric procedural models for shape representation. *Graphics and Visual Computing*, 2021.

[13] J. Zhang, P. Ganesh, K. Volle, A. Willis, and K. Brink. Low-bandwidth and compute-bound rgb-d planar semantic slam. *Sensors*, 2021.