Pio Ong

Academic Curriculum Vitae

Mechanical and Aerospace Engineering
Jacobs School Of Engineering
University of California, San Diego

Email: piong@ucsd.edu
Website: http://carmenere.ucsd.edu/pio

Education

University of California, San Diego (UCSD) Fall 2021 (expected)
PhD, Dynamic Systems and Controls GPA: 4.00
Advisor: Prof. Jorge Cortés

University of Southern California (USC) December 2013
M.S., Astronautical Engineering GPA: 4.00

University of California, San Diego (UCSD) June 2012
B.S., Aerospace Engineering GPA: 3.87

Research Career

Postdoctoral Researcher (January 2022 - current)
Institution: Caltech, Supervisor: Prof. Aaron D. Ames

Research Interests

- Event-triggered implementations for opportunistic controls
- Control barrier functions for safety-critical systems
- Analysis and controls of network systems
- Smoothness analysis of feedback controllers

Awards and Honors

- Outstanding Reviewer 2020
  IEEE Control Systems Letters (L-CSS)
- Teaching Assistant Commendation 2020
  Department of Mechanical and Aerospace Engineering, UCSD

Teaching Experience

Lecturer
Feedback Systems, Caltech (Spring 2023)

Teaching Assistant
Nonlinear Control, UCSD (Spring 2018, Spring 2019, Spring 2020), Instructor: Prof. Jorge Cortés,

Mentoring

Gilbert Bahati (current)

Professional Services

Reviewer for Journals
IEEE Control Systems Letters (L-CSS), IEEE Transactions on Automatic Control, Automatica, IEEE Access

Reviewer for Conferences
IEEE Conference on Decision and Control (CDC), IEEE International Conference on Robotics and Automation (ICRA), American Control Conference (ACC), International Symposium on Mathematical Theory of Networks

and Systems (MTNS), IFAC Conference on Modelling, Identification, and Control of Nonlinear Systems (MICNON)

Program Committee Member
ICRA'21 Workshop on Safe Robot Control with Learned Motion and Environment Models

Workshop Organizer
37th Southern California Control Workshop 40th Southern California Control Workshop

Publications

Journal Articles

(J-4) P. Ong, B. Capelli, L. Sabattini, and J. Cortés. Nonsmooth control barrier function design of continuous constraints for network connectivity maintenance. *Automatica*, 2023. To appear

(J-3) P. Ong and J. Cortés. Performance-barrier-based event-triggered control with applications to network systems. *IEEE Transactions on Automatic Control*, 2021. Submitted

(J-2) A. J. Taylor, P. Ong, J. Cortés, and A. Ames. Safety-critical event triggered control via input-to-state safe barrier functions. *IEEE Control Systems Letters*, 5(3):749–754, 2021
(The first two authors contributed equally.)

(J-1) P. Ong and J. Cortés. Opportunistic robot control for interactive multiobjective optimization under human performance limitations. *Automatica*, 123:109263, 2021

Conference Proceedings

(C-9) P. Ong and A. D. Ames. Intermittent safety filters for event-triggered safety maneuvers with application to satellite orbit transfers. In *IEEE Conf. on Decision and Control*, Marina Bay Sands, Singapore, December 2023. Submitted

(C-8) G. Bahati, P. Ong, and A. D. Ames. Violation-free inter-sampling safety: from control barrier functions to tunable controllers with input-to-state safety guarantees. In *IEEE Conf. on Decision and Control*, Marina Bay Sands, Singapore, December 2023. Submitted

(C-7) P. Ong, G. Bahati, and A. D. Ames. Stability and safety through event-triggered intermittent control with application to spacecraft orbit stabilization. In *IEEE Conf. on Decision and Control*, pages 453–460, Cancún, Mexico, December 2022

(C-6) A. J. Taylor, P. Ong, T. G. Molnar, and A. D. Ames. Safe backstepping with control barrier functions. In *IEEE Conf. on Decision and Control*, pages 5575–5782, Cancún, Mexico, December 2022

(C-5) P. Ong, B. Capelli, L. Sabattini, and J. Cortés. Network connectivity maintenance via nonsmooth control barrier functions. In *IEEE Conf. on Decision and Control*, pages 4780–4785, Austin, Texas, December 2021
(The first two authors contributed equally.)

(C-4) A. J. Taylor, P. Ong, J. Cortés, and A. Ames. Safety-critical event triggered control via input-to-state safe barrier functions. In *IEEE Conf. on Decision and Control*, Jeju Island, South Korea, December 2020
(The first two authors contributed equally.)

(C-3) P. Ong and J. Cortés. Universal formula for smooth safe stabilization. In *IEEE Conf. on Decision and Control*, pages 2373–2378, Nice, France, December 2019

(C-2) P. Ong and J. Cortés. Event-triggered control design with performance barrier. In *IEEE Conf. on Decision and Control*, pages 951–956, Miami Beach, Florida, December 2018

(C-1) P. Ong and J. Cortés. Event-triggered interactive gradient descent for real-time multi-objective optimization. In *IEEE Conf. on Decision and Control*, pages 5445–5450, Melbourne, Australia, December 2017