GUOSONG YANG

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Position

University of California, Santa Barbara — Santa Barbara, CA
Postdoctoral Scholar — Aug. 2017–present
Center for Control, Dynamical Systems and Computation
Advisor: João P. Hespanha

Education

University of Illinois at Urbana-Champaign (UIUC) — Urbana, IL
Ph.D. in Electrical and Computer Engineering — Aug. 2013–Aug. 2017
Advisor: Daniel Liberzon
Dissertation: "Switched and hybrid systems with inputs: small-gain theorems, control with limited information, and topological entropy"

University of Illinois at Urbana-Champaign (UIUC) — Urbana, IL
M.S. in Electrical and Computer Engineering — Aug. 2011–Aug. 2013
Advisor: Daniel Liberzon
Thesis: "A Lyapunov-based small-gain theorem for interconnected switched systems"

Hong Kong University of Science and Technology (HKUST) — Hong Kong
B.Eng. in Electronic Engineering (Honors Research Option) — Sep. 2007–May 2011
Minor in Mathematics
Advisor: Zexiang Li

Research interests

- Switched and hybrid systems
- Networked systems
- Control with limited information
- Network security

Publications

Journals

- **Guosong Yang** and Daniel Liberzon, "Feedback stabilization of a switched linear system with an unknown disturbance under data-rate constraints," *IEEE Transactions on Automatic Control*, vol. 63, no. 7, pp. 2107–2122, 2018

- Kunihisa Okano, Masashi Wakaiki, **Guosong Yang**, and João P. Hespanha, "Stabilization of networked control systems under clock offsets and quantization," *IEEE Transactions on Automatic Control*, vol. 63, no. 6, pp. 1708–1723, 2018
- Andrii Mironchenko, **Guosong Yang**, and Daniel Liberzon, "Lyapunov small-gain theorems for networks of not necessarily ISS hybrid systems," *Automatica*, vol. 88, pp. 10–20, 2018
- **Guosong Yang** and Daniel Liberzon, "A Lyapunov-based small-gain theorem for interconnected switched systems," *Systems & Control Letters*, vol. 78, pp. 47–54, 2015

Conferences

- **Guosong Yang** and João P. Hespanha, "On topological entropy of switched linear systems with pairwise commuting matrices," in *56th Annual Allerton Conference on Communication, Control, and Computing*, 2018, to appear (Invited Paper)
- **Guosong Yang**, A. James Schmidt, and Daniel Liberzon, "On topological entropy of switched linear systems with diagonal, triangular, and general matrices," in *57th IEEE Conference on Decision and Control*, 2018, to appear
- **Guosong Yang**, Hossein Hosseini, Dinuka Sahabandu, Andrew Clark, João P. Hespanha, and Radha Poovendran, "Modeling and mitigating the Coremelt attack," in *2018 American Control Conference*, 2018, pp. 3410–3416
- **Guosong Yang**, Daniel Liberzon, and Zhong-Ping Jiang, "Stabilization of interconnected switched control-affine systems via a Lyapunov-based small-gain approach," in *2017 American Control Conference*, 2017, pp. 5182–5187
- **Guosong Yang**, Daniel Liberzon, and Andrii Mironchenko, "Analysis of different Lyapunov function constructions for interconnected hybrid systems," in *55th IEEE Conference on Decision and Control*, 2016, pp. 465–470 (Invited Paper)
- **Guosong Yang** and Daniel Liberzon, "Finite data-rate stabilization of a switched linear system with unknown disturbance," in *10th IFAC Symposium on Nonlinear Control Systems*, vol. 49, no. 18, 2016, pp. 1085–1090
- **Guosong Yang** and Daniel Liberzon, "Stabilizing a switched linear system with disturbance by sampled-data quantized feedback," in *2015 American Control Conference*, 2015, pp. 2193–2198
- **Guosong Yang** and Daniel Liberzon, "Input-to-state stability for switched systems with unstable subsystems: A hybrid Lyapunov construction," in *53rd IEEE Conference on Decision and Control*, 2014, pp. 6240–6245
- Andrii Mironchenko, **Guosong Yang**, and Daniel Liberzon, "Lyapunov small-gain theorems for not necessarily ISS hybrid systems," in *21st International Symposium on Mathematical Theory of Networks and Systems*, 2014, pp. 1001–1008

Workshop talks

- *The 2nd Midwest Workshop on Control and Game Theory*, University of Notre Dame, 2013

- *The 35th Southern California Control Workshop*, University of California, Los Angeles, 2018

Grant experience

- Coauthor of National Science Foundation grant CMMI-1662708: "Switched control systems with limited information: An entropy approach to stabilization and disturbance attenuation," PI: Daniel Liberzon, 2017–2020

Awards and honors

- Graduate College Conference Travel Award — UIUC, 2016
- Best Poster Award, 11th CSL Student Conference — UIUC, 2016
- University Scholarship — HKUST, 2007–2011
- School of Engineering Scholarship — HKUST, 2007–2011
- ECE Outstanding Freshmen Scholarship — HKUST, 2007–2011
- The Joseph Lau Luen Hung Charitable Trust Scholarship — HKUST, 2007–2011
- Gold medal, 8th Asian Physics Olympiad — APhO, 2007

Teaching

University of Illinois at Urbana-Champaign — Urbana, IL

- Teaching assistant, ECE517 Nonlinear and Adaptive Control — Fall 2015, Fall 2016
- Teaching assistant, ECE528 Analysis of Nonlinear Systems — Spring 2015

Service

Journal reviewer

- IEEE Transactions on Automatic Control
- IFAC Automatica
- System & Control Letters
- Nonlinear Analysis: Hybrid Systems
- IEEE Control Systems Letters

Conference reviewer

- American Control Conference: ACC 2017 and ACC 2018
- ACM International Conference on Hybrid Systems: Computation and Control: HSCC 2016 and HSCC 2017
- IFAC Conference on Modelling, Identification and Control of Nonlinear Systems: MICNON 2015