

# GUOSONG YANG

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## POSITION

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### University of California, Santa Barbara (UCSB)

Postdoctoral Scholar  
Center for Control, Dynamical Systems, and Computation  
Department of Electrical and Computer Engineering  
Advisor: [João P. Hespanha](#)

Santa Barbara, CA  
Aug. 2017–present

## EDUCATION

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### University of Illinois at Urbana-Champaign (UIUC)

Ph.D. in Electrical and Computer Engineering  
Advisor: [Daniel Liberzon](#)

Urbana, IL  
Aug. 2013–Aug. 2017

Dissertation: “Switched and hybrid systems with inputs: small-gain theorems, control with limited information, and topological entropy”

### University of Illinois at Urbana-Champaign (UIUC)

M.S. in Electrical and Computer Engineering  
Advisor: [Daniel Liberzon](#)

Urbana, IL  
Aug. 2011–Aug. 2013

Thesis: “A Lyapunov-based small-gain theorem for interconnected switched systems”

### Hong Kong University of Science and Technology (HKUST)

B.Eng. in Electronic Engineering (Honors Research Option)  
Minor in Mathematics  
Advisor: [Zexiang Li](#)

Hong Kong  
Sep. 2007–May 2011

## RESEARCH INTERESTS

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

## PUBLICATIONS

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### 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, Jul. 2018
- Kuniyoshi 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, Jun. 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, Feb. 2018
- Guosong Yang and Daniel Liberzon, “A Lyapunov-based small-gain theorem for interconnected switched systems,” *Systems & Control Letters*, vol. 78, pp. 47–54, Apr. 2015

#### Conferences

- Guosong Yang, João P. Hespanha, and Daniel Liberzon, “On topological entropy and stability of switched linear systems,” in *22nd ACM International Conference on Hybrid Systems: Computation and Control*. ACM, 2019, to be published
- 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 be published (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*. IEEE, 2018, pp. 5682–5687
- 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*. IEEE, 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*. IEEE, 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*. IEEE, 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. Elsevier B.V., 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*. IEEE, 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*. IEEE, 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

#### PRESENTATIONS AND SEMINARS

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- Presentation at the [57th IEEE Conference on Decision and Control](#), Miami Beach, FL, Dec. 2018
- Presentation at the [35th Southern California Control Workshop](#), University of California, Los Angeles, CA, Nov. 2018
- Invited presentation at the [56th Annual Allerton Conference on Communication, Control, and Computing](#), Monticello, IL, Oct. 2018

- Presentation at the *2018 American Control Conference*, Milwaukee, WI, Jun. 2018
- Presentation at the *2017 American Control Conference*, Seattle, WA, May. 2017
- Seminar at the *Multi-Agent Robotics Lab*, University of California, San Diego, CA, Mar. 2017
- Seminar at the *Hybrid Systems Laboratory*, University of California, Santa Cruz, CA, Feb. 2017
- Invited presentation at the *55th IEEE Conference on Decision and Control*, Las Vegas, NV, Dec. 2016
- Seminar at the *Center for Control, Dynamical Systems, and Computation*, University of California, Santa Barbara, CA, Nov. 2016
- Seminar at the *Cyber-Physical Systems Laboratory*, University of California, Los Angeles, CA, Oct. 2016
- Presentation at the *10th IFAC Symposium on Nonlinear Control Systems*, Monterey, CA, Aug. 2016
- Poster presentation at the *11th CSL Student Conference*, Urbana, IL, Feb. 2016
- Presentation at the *2015 American Control Conference*, Chicago, IL, Jul. 2015
- Presentation at the *53rd IEEE Conference on Decision and Control*, Los Angeles, CA, Dec. 2014
- Presentation at the *2nd Midwest Workshop on Control and Game Theory*, University of Notre Dame, Notre Dame, IN, Apr. 2013

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#### GRANT-WRITING EXPERIENCE

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- 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, Amount: \$349,540

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#### AWARDS AND HONORS

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| • Best Poster Award, 11th CSL Student Conference, UIUC         | 2016      |
| • Graduate College Conference Travel Award, 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                       | 2007      |

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#### TEACHING

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|---|----------------------|
| <b>University of Illinois at Urbana-Champaign (UIUC)</b>                    | Urbana, IL           |
| – Teaching assistant, <a href="#">ECE517 Nonlinear and Adaptive Control</a> | Fall 2015, Fall 2016 |
| – Teaching assistant, <a href="#">ECE528 Analysis of Nonlinear Systems</a>  | Spring 2015          |

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](#)