

# Curriculum Vitae

Marco Maria Nicotra

**Address:** Engineering Center, ECEE  
425 UCB, Boulder (CO), 80309

**Email:** [marco.nicotra@colorado.edu](mailto:marco.nicotra@colorado.edu)  
**Telephone:** +1 (303) 735-7203

## Research Interests

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**Broad Areas of Interest:** Nonlinear Systems, Constrained Control, Optimization

**Target Applications:** Unmanned Aerial Vehicles, Human-Robot Interaction, Spacecraft, Quantum Systems, Battery Management Systems, Wind Farms

## Employment

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**Assistant Professor**  
University of Colorado Boulder  
ECEE Department

**August 2018 – Present**  
Boulder, Colorado

**Postdoctoral Research Fellow**  
University of Michigan  
Advisor: Ilya Kolmanovsky

**October 2016 – July 2018**  
Ann Arbor, Michigan

## Education

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**Joint Ph.D. Degree**  
Université Libre de Bruxelles  
*Engineering Sciences*

**September 2016**  
Brussels, Belgium

University of Bologna  
*Automation and Operational Research*

Bologna, Italy

Advisors: Emanuele Garone, Roberto Naldi

**T.I.M.E. Double M.S. Degree**  
Université Libre de Bruxelles  
*Electromechanical Engineering*

**September 2012**  
Brussels, Belgium

Politecnico di Milano  
*Mechanical Engineering*

Milan, Italy

**B.S. Degree**  
Politecnico di Milano  
*Mechanical Engineering*

**June 2009**  
Milan, Italy

## Honors and Awards

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- **2023: IEEE Senior Member**
- **2023: ECEE Department – Outstanding Jr. Faculty**
- **2021: NSF – Faculty Early Career Development Award**  
“*CAREER: Hypersampled Model Predictive Control: Reconciling Analog Systems with Digital Controllers*”
- **2019: Finalist for Best Student Paper** (Student: D. Liao-McPherson).  
European Control Conference. Paper: “*A Semismooth Predictor Corrector Method for Suboptimal Model Predictive Control*”
- **2014: Honourable Mention for the IFAC Young Author Prize.**  
IFAC World Congress. Paper: “*Taut cable control of a tethered UAV*”
- **2012: FNRS – FRIA Doctoral Grant**  
“*Control of an Autonomous Tethered Aerial Vehicle for Inspection Applications with Tele-Operation Requirements (CAT-AVIATOR)*”

## Funding and Grants

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### Government Funding Agencies

- **NASA STRI 2022:** “*Quantum pathways for Spaceborne Climate Science*”, Nov. 2023 – Nov. 2028. Amount: \$15m (my share: \$720,000), Lead: S. V. Bettadpur (UT Austin), Consortium: UT Austin, CU Boulder, UCSB, Caltech.
- **NSF CMMI 2046212:** “*CAREER: Hypersampled Model Predictive Control: Reconciling Analog Systems with Digital Controllers*”, Sept. 2021 – Aug. 2026. Amount: \$567,426, PI: M.M. Nicotra, Co-PIs: None.
- **NSF QII-TAQS 1936303:** “*Quantum control of ultracold atoms in optical lattices for space inertial sensing*”, Jan. 2019 – Sept. 2023. Amount: \$1,928,242 (my share: \$320,391), PI: D. Anderson, Co-PIs: M. Holland, M.M. Nicotra, P. Axelrad, and A. Zozulya.
- **NSF CMMI 1904441:** “*Collaborative Research: Real-time iteration governor for constrained nonlinear model predictive control*”, July. 2019 – July 2023. Amount: \$431,876, PI: M.M. Nicotra, Co-PIs: Ilya V. Kolmanovsky.

### CU Boulder Internal Funding

- **EEF Major Proposal:** “*Modernization of the Control Systems Laboratory*”, May 2019 – Aug 2019. Amount: \$101,581.08, PI: M.M. Nicotra, Co-PIs: None.
- **QuEST Seed Grant:** “*Advanced Control Algorithms for Trapped-ion Quantum Metrology*”, May 2019 – Aug. 2019. Amount: \$57,850.00, PI: M.M. Nicotra, Co-PIs: D. Leibbrandt.
- **ASIRT Seed Grant:** “*Mobile Sensing Using UAVs to Enable Accurate Wind Field Estimation Across Wind Farms: Extensions to Large Wind Farms, Multiple UAVs, and Time-Varying Wind Fields*”, Jan 2019 – May 2019. Amount: \$8,000.00, PI: L. Pao, Co-PIs: M.M. Nicotra, C. Dixon.

## **Teaching Activities**

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### **Graduate Courses**

- ECEN 5028-ST Constrained Control: S22
- ECEN 5638 Control Systems Laboratory: S20, S21, S22, S23
- ECEN 5738 Theory of Nonlinear Systems: F18, S23

### **Undergraduate Courses**

- ECEN 2260 Circuits as Systems: F22
- ECEN 2310 Programming with Mathematical Software: F19, F20, F21
- ECEN 4638 Control Systems Laboratory: S19, S20, S21, S22, S23

## **Advising and Mentoring**

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### **Doctoral Students**

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|--------------------------------|---------------------------|
| 1. Victor Freire Melgizo, ECEE | Aug 2022 - present        |
| 2. Yaashia Gautam, ECEE        | Aug 2021 - present        |
| 3. Marco Pomponio, ECEE        | Jan 2021 - present        |
| 4. Jieqiu Shao, ECEE           | Aug 2019 - May 2024 (exp) |
| 5. Terrence Skibik, ECEE       | Aug 2019 - Dec 2023 (exp) |
| 6. Thomas Dearing, ECEE        | Aug 2018 - May 2023       |

### **Master Students**

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|------------------------------|----------------------|
| 7. Jonathan Hanson, ECEE     | Jan 2021 - May 2022  |
| 8. Anne Cross Theurkauf, AES | Aug 2019 - May 2020  |
| 9. Jieqiu Shao, ME           | May 2019 - Aug 2019  |
| 10. David James Pasley, ECEE | Sept 2018 - Mar 2021 |

### **Undergraduate Students**

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|--------------------------------|---------------------|
| 11. Quinton Corry, ECEE        | Oct 2022 - May 2023 |
| 12. Jasleen Batra, ECEE        | Aug 2022 - May 2023 |
| 13. Alexis Katrina Palau, ECEE | Aug 2021 - May 2022 |
| 14. Mitchell Crine, ME         | Aug 2021 - Dec 2021 |

### **Exchange Students**

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|------------------------------------------------|----------------------|
| 1. Andrea Mengozzi, University of Bologna      | Sept 2019 - Feb 2020 |
| 2. Kelly Merckaert, Vrije Universiteit Brussel | Feb 2019 - July 2019 |
| 3. Bryan Convens, Vrije Universiteit Brussel   | Feb 2019 - July 2019 |

### **Co-advised Students (Outside of CU)**

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|------------------------------------------------|----------------------|
| 4. Dominic Liao-McPherson, U. of Michigan      | Nov 2016 - May 2020  |
| 5. Kelly Merckaert, Vrije Universiteit Brussel | Sept 2015 - May 2023 |
| 6. Bryan Convens, Vrije Universiteit Brussel   | Sept 2015 - May 2023 |

## Service Activities

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### Professional Service

#### Technical Program Committee

- *Editorial Board*: IEEE-CSS Technology Conferences (2023-2026)
- *Associate Editor*: IEEE Conference on Control Tech. and Applications (2020)
- *Associate Editor*: American Control Conference (2020)

#### Peer Reviewer

- *Proposals*: NSF Panelist for Foundational Research in Robotics (FRR) program and Dynamics, Control, and Systems Diagnostics (DCSD) program.
- *Journals*: IEEE Transactions on Automatic Control, IEEE Transactions on Control System Technologies, Control System Society Letters, Automatica, Journal of Guidance, Control, and Dynamic
- *Conferences*: American Control Conference, Conference on Decision and Control, IFAC World Congress, International Conference on Robotics and Automation

#### Technical Committee Member

- IEEE-CSS Technical Committee for Aerospace Controls, Dec. 2018 - present

### College Service

- Member of the Quantum Engineering Initiative Advisory Committee, AY 21-22
- Member of the Graduate Robotics Program Executive Committee: AY 21-22
- Reviewer for the CAREER Commit to Submit Program: AY 21-22

### Departmental Service

- Chair of the Undergraduate Teaching Laboratory Committee, AY 20-21
- Member of the Social Activities Sub-committee: AY 20-21
- Member of Faculty Search Committee: AY 19, 22
- Member of the Undergraduate Curriculum Committee: AY 18-19, 22
- Member of the Procurement Specialist Hiring Committee: AY 19
- Member of the Climate Committee: AY 18

## List of Publications

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### Journal Articles

- [J1] **J. Shao**, M. Naris, J. Hauser, M.M. Nicotra, “*How to solve quantum optimal control problems using projection operator-based Newton steps*”, Phys. Review A, vol 109 (1), pp. 012609, 2024.
- [J2] **K. Merckaert**, **B. Convens**, M.M. Nicotra, B. Vanderborght, “*Real-time constraint-based planning and control of robotic manipulators for safe human-robot collaboration*”, Robotics and Computer-Integrated Manufacturing, vol 87, pp 102711, 2024.
- [J3] **T. Skibik**, **D. Liao-McPherson**, M.M. Nicotra, “*A terminal set feasibility governor for linear model predictive control*”, IEEE Transactions on Automatic Control, Early Access, 2023.
- [J4] **V. Freire**, M.M. Nicotra, “*Systematic design of discrete-time control barrier functions using maximal output admissible sets*”, IEEE Control Systems Letters, vol. 7, pp. 1891-1896, 2023.
- [J5] M.M. Nicotra, **J. Shao**, J. Combes, **A. Cross Theurkauf**, P. Axelrad, L.-Y. Chih, M. Holland, A.A. Zozulya, C.K. LeDesma, K. Mehling, D.Z. Anderson, “*Modeling and control of ultracold atoms trapped in an optical lattice: an example-driven tutorial on quantum control*”, IEEE Control Systems Magazine, vol. 43(1), pp. 28-43, 2023.
- [J6] **T. Skibik**, M.M. Nicotra, “*Analysis of time-distributed model predictive control when using a regularized primal–dual gradient optimizer*”, IEEE Control Systems Letters, vol. 7, pp. 235-240, 2022.
- [J7] D.S. Zalkind, M.M. Nicotra, L.Y. Pao “*Constrained power reference control for wind turbines*”, Wind Energy, vol. 25(5), pp. 914-934, 2022.
- [J8] **T.L. Dearing**, J. Hauser, X. Chen, M.M. Nicotra, C. Petersen, “*Efficient trajectory optimization for constrained spacecraft attitude maneuvers*”, AIAA Journal of Guidance, Control, and Dynamics, vol. 45(4), pp. 638-650, 2022.
- [J9] **J. Shao**, J. Combes, J. Hauser, M.M. Nicotra, “*Projection-operator-based Newton method for the trajectory optimization of closed quantum systems*”, Physical Review A, vol. 105(3), p. 032605, 2022.
- [J10] **B. Convens**, **K. Merckaert**, M.M. Nicotra, B. Vanderborght, “*Safe, fast, and efficient distributed receding horizon constrained control of aerial robot swarms*”, IEEE Robotics and Automation Letters, vol. 7(2), pp. 4173-4180, 2022.
- [J11] **K. Merckaert**, **B. Convens**, C.-J. Wu, A. Roncone, M.M. Nicotra, B. Vanderborght, “*Real-time motion control of robotic manipulators for safe human–robot coexistence*”, Robotics and Computer-Integrated Manufacturing, vol. 73, p. 102223, 2022.
- [J12] **T. Skibik**, **D. Liao-McPherson**, T. Cunis, I.V. Kolmanovsky, M.M. Nicotra, “*A feasibility governor for enlarging the region of attraction of linear model predictive controllers*”, IEEE Trans. on Automatic Control, vol. 67(10), pp. 5501-5508, 2021.
- [J13] **D. Liao-McPherson**, **T. Skibik**, J. Leung, I.V. Kolmanovsky, M.M. Nicotra, “*An analysis of closed-loop stability for linear model predictive control based on time-distributed optimization*”, IEEE Transactions on Automatic Control, vol. 67 (5), pp. 2618-2615, 2021.

- [J14] **B. Convens, K. Merckaert, B. Vanderborght, M.M. Nicotra**, “*Invariant set distributed explicit reference governors for provably safe on-board control of nano-quadrotor swarms*”, *Frontiers in Robotics and AI*, vol. 8, p. 129, 2021.
- [J15] A. Goldar, R. Romagnoli, L.D. Couto, M.M. Nicotra, M. Kinnaert, E. Garone, “*Low-complexity fast charging strategies based on explicit reference governors for Li-Ion battery cells*”, *IEEE Trans. on Control Sys. Tech.*, vol. 29(4), pp. 1597-1608, 2020.
- [J16] **T.L. Dearing**, X. Chen, M.M. Nicotra, “*Stabilizing formation systems with nonholonomic agents*”, *IEEE Control Systems Letters*, vol. 5(2), pp. 403-408, 2020.
- [J17] **D. Liao-McPherson**, M.M. Nicotra, A.L. Dontchev, I.V. Kolmanovsky, V. Veliov, “*Sensitivity-based warmstarting for nonlinear model predictive control with polyhedral state and control constraints*”, *IEEE Transactions on Automatic Control*, vol. 65(10), pp. 4288-4294, 2020.
- [J18] M.M. Nicotra, **D. Liao-McPherson**, L. Burlion, I.V. Kolmanovsky, “*Spacecraft attitude control with nonconvex constraints: an explicit reference governor approach*”, *IEEE Transactions on Automatic Control*, vol. 65(8), pp. 3677-3684, 2020.
- [J19] **D. Liao-McPherson**, M.M. Nicotra, I.V. Kolmanovsky, “*Time-distributed optimization for real-time model predictive control: stability, robustness, and constraint satisfaction*”, *Automatica*, vol. 117, p. 108973, 2020.
- [J20] T. Nguyen, M.M. Nicotra, E. Garone, “*A geodesic approach for the control of tethered quadrotors*”, *AIAA Journal of Guidance, Control, and Dynamics*, vol 43(4), pp. 854-862, 2020.
- [J21] A.L. Dontchev, M. Huang, I.V. Kolmanovsky, M.M. Nicotra, “*Inexact Newton-Kantorovich methods for constrained nonlinear model predictive control*”, *IEEE Transactions on Automatic Control*, vol 64(9), pp. 3602-3615, 2019.
- [J22] M.M. Nicotra, T. Nguyen, E. Garone, I.V. Kolmanovsky, “*Explicit reference governor for the constrained control of time-delayed linear systems*”, *IEEE Transactions on Automatic Control*, vol. 64(7), pp. 2883-2889, 2019.
- [J23] M.M. Nicotra, **D. Liao-McPherson**, I.V. Kolmanovsky, “*Embedding constrained model predictive control in a continuous-time dynamic feedback*”, *IEEE Transactions on Automatic Control*, vol 64(5), pp. 1932-1946, 2019.
- [J24] A.L. Dontchev, I.V. Kolmanovsky, M.I. Krastanov, M.M. Nicotra, V.M. Veliov, “*Lipschitz Stability in discretized optimal control*”, *SIAM Journal on Control and Optimization*, vol. 57(1), pp. 468-489, 2019.
- [J25] M.M. Nicotra, E. Garone, “*The explicit reference governor: a general framework for the closed-form control of constrained nonlinear systems*”, *IEEE Control Systems Magazine*, vol. 38(4), pp. 89-107, 2018.
- [J26] E. Garone, M.M. Nicotra, L. Ntogramatzidis, “*Explicit reference governor for linear systems*”, *International Journal of Control*, vol. 91(6), pp. 1415-1430, 2018.
- [J27] M.M. Nicotra, R. Naldi, E. Garone, “*Nonlinear control of a tethered UAV: the taut cable case*”, *Automatica*, vol. 78, pp 174-184, 2017.
- [J28] M.M. Nicotra, E. Garone, I. V. Kolmanovsky, “*A fast reference governor for linear systems subject to convex constraints*”, *AIAA Journal of Guidance, Control, and Dynamics*, vol 40, pp. 461-465, 2016.
- [J29] E. Garone, M.M. Nicotra, “*Explicit reference governor for constrained nonlinear systems*”, *IEEE Trans. on Automatic Control*, vol. 61, no. 5, pp. 1379-1384, 2016.

- [J30] M.M. Nicotra, R. Naldi, E. Garone, “*Sufficient conditions for the stability of a class of second order systems*”, Systems and Control Letters, vol. 84, pp 1-6, 2015.

### Conference Proceedings (peer reviewed)

- [C1] **Y. Gautam**, M.M. Nicotra, “*Influence of discretization in dynamically embedded model predictive control*”, to appear in: Proc. of the 22<sup>th</sup> IFAC World Congress, IFAC-PapersOnLine, 2023.
- [C2] **T.L. Dearing**, J. Hauser, C. Petersen, M.M. Nicotra, X. Chen, “*Attitude trajectory optimization and momentum conservation with control moment gyroscopes*”, to appear in: Proc. of the 22<sup>th</sup> IFAC World Congress, IFAC-PapersOnLine, 2023.
- [C3] **J. Shao**, L.-Y. Chih, M. Naris, M. Holland, M.M. Nicotra, “*Application of quantum optimal control to shaken lattice interferometry*”, to appear in: Proc. of the American Control Conference, pp. 850-855, 2023.
- [C4] **J. Shao**, M.M. Nicotra, “*A Lyapunov-based shaking function for a class of non-bilinear quantum systems*”, Proc. of the American Control Conference, pp. 850-855, 2022.
- [C5] S. Van Leeuwen, **T. Skibik**, M.M. Nicotra, I.V. Kolmanovsky, D. Liao-McPherson, “*A nonlinear predictive control strategy for landing on an asteroid*”, Proc. of the American Control Conference, pp. 443-449, 2022.
- [C6] **T. Skibik**, **D. Liao-McPherson**, T. Cunis, I.V. Kolmanovsky, M.M. Nicotra, “*feasibility governor for linear model predictive control*”, Proc. of the American Control Conference, pp. 2329-2335, 2021.
- [C7] **T.L. Dearing**, C.D. Petersen, M.M. Nicotra, X. Chen, “*Fuel-balanced formation flight control of underactuated satellites*”, Proc. of the American Control Conference, pp. 4319-4324, 2020.
- [C8] **D.J. Pasley**, M.M. Nicotra, L. Pao, J. King, C. Bay, “*Mobile sensing for wind field estimation in wind farms*”, Proc. of the American Control Conference, pp. 4071-4076, 2020.
- [C9] G. Ding, J.J. Koh, **K. Merckaert**, B. Vanderborght, M.M. Nicotra, C. Heckman, A. Roncone, L. Chen, “*Distributed reinforcement learning for cooperative multi-robot object manipulation*”, Proc. of 19th International Conference on Autonomous Agents and MultiAgent Systems, pp. 1831-1833, 2020.
- [C10] **D. Liao-McPherson**, M.M. Nicotra, I.V. Kolmanovsky, “*A semismooth predictor corrector method for suboptimal model predictive control*”, Proc. of the IEEE European Control Conference, pp. 2749-2755, 2019.
- [C11] A. Cotorruelo Jiménez, D. Limón, M.M. Nicotra, E. Garone, “*Explicit reference governor toolbox (ERGT)*”, Proc. of IEEE 4th International Forum on Research and Technology for Society and Industry, pp. 1-6, 2018.
- [C12] L. Burlion, M.M. Nicotra, I.V. Kolmanovsky, “*A fast reference governor for the constrained control of linear discrete-time systems with parametric uncertainties*”, Proc. of the IEEE Conference on Decision and Control, pp. 6289-6294, 2018.
- [C13] **D. Liao-McPherson**, M.M. Nicotra, I.V. Kolmanovsky, “*A semismooth predictor corrector method for real-time parametric optimization with applications in model predictive control*”, Proc. of the IEEE Conference on Decision and Control, pp. 3600-3607, 2018.

- [C14] **K. Merckaert**, M.M. Nicotra, B. Vanderborght, E. Garone, “*Constrained control of robotic manipulators using the explicit reference governor*”, Proc. of the IEEE/RSJ International Conference on Intelligent Robots and Systems, pp. 5155- 5162, 2018.
- [C15] M.M. Nicotra, **D. Liao-McPherson**, I.V. Kolmanovsky, “*Dynamically embedded model predictive control*”, Proc. of the American Control Conference, pp. 4957-4962, 2018.
- [C16] R. Romagnoli, L.D. Couto, M.M. Nicotra, M. Kinnaert, E. Garone, “*Computationally-efficient constrained control of the state-of-charge of a Li-ion battery cell*”, Proc. of the IEEE Conference on Decision and Control, pp. 1433-1439, 2017.
- [C17] **B. Convens**, **K. Merckaert**, M.M. Nicotra, R. Naldi, E. Garone, “*Control of fully actuated unmanned aerial vehicles with actuator saturation*”, Proc. of the 20<sup>th</sup> IFAC World Congress, IFAC-PapersOnLine, vol. 50, pp. 12715-12720, 2017.
- [C18] M.M. Nicotra, E. Garone, “*An explicit reference governor for the robust constrained control of nonlinear systems*”, Proc. of the IEEE Conference on Decision and Control, pp. 1502-1507, 2016.
- [C19] M.M. Nicotra, R. Naldi, E. Garone, “*A robust explicit reference governor for the constrained control of unmanned aerial vehicles*”, Proc. of the American Control Conference, pp. 6284-6289, 2016.
- [C20] L.D. Couto, J. Schorsh, M.M. Nicotra, M. Kinnaert, “*SOC and SOH estimation for Li-ion batteries based on an equivalent hydraulic model. Part I: SOC and surface concentration estimation*”, Proc. of the American Control Conference, pp. 4022-4028, 2016.
- [C21] M.M. Nicotra, E. Garone, “*Control of Euler-Lagrange systems subject to constraints: an explicit reference governor approach*”, Proc. of the IEEE Conference on Decision and Control, pp. 1154-1159, 2015.
- [C22] M.M. Nicotra, E. Garone, “*Explicit reference governor for continuous time nonlinear systems subject to convex constraints*”, Proc. of the American Control Conference, pp. 4561-4566, 2015.
- [C23] M.M. Nicotra, M. Bartulovic, E. Garone, B. Sinopoli, “*A distributed explicit reference governor for constrained control of multiple UAVs*”, Proc. of the 5<sup>th</sup> IFAC Workshop on Distributed Estimation and Control in Networked Systems, IFAC Proceedings Volumes, vol. 48 (22), pp. 156-161, 2015.
- [C24] M.M. Nicotra, R. Naldi, E. Garone, “*Taut cable control of a tethered UAV*”, Proc. of the 19<sup>th</sup> IFAC World Congress, IFAC Proceedings Volumes, vol. 47(3), pp. 3190-3195, 2014.
- [C25] S. Eeckhout, M.M. Nicotra, R. Naldi, E. Garone, “*Nonlinear control of an actuated tethered airfoil*”, Proc. of the 22<sup>nd</sup> Mediterranean Conference on Control and Automation, pp. 1412-1417, 2014.
- [C26] M.M. Nicotra, E. Garone, R. Naldi, “*Nested saturation control of an UAV carrying a suspended load*”, Proc. of American Control Conference, pp. 3585-3590, 2014.
- [C27] M.M. Nicotra, A. Buttafuoco, M. Kinnaert, “*Hybrid model for haptic lung palpation*”, Proc. of the 16<sup>th</sup> IFAC Symposium on System Identification, IFAC Proceedings Volumes, vol. 16 (1), pp. 1431-1436, 2012.

## Under Review

- [J31] **T.L. Dearing**, J. Hauser, X. Chen, M.M. Nicotra, C. Petersen, “*Energy-optimal attitude control strategies with control moment gyroscopes*”, AIAA Journal of Guidance, Control, and Dynamics.
- [J32] C.K. LeDesma, K. Mehling, **J. Shao**, J.D. Wilson, P. Axelrad, M.M. Nicotra, M. Holland, D.Z. Anderson, “*A machine-designed optical lattice atom interferometer*”, Science.
- [J33] **B. Convens, D. Liao-McPherson, K. Merckaert**, B. Vanderborght, M.M. Nicotra, “*An explicit terminal set feasibility governor for real-time nonlinear model predictive control over arbitrary horizons*”, IEEE Trans. on Automatic Control.
- [J34] G. Tartaglione, M.M. Nicotra, R. Naldi, E. Garone, “*A systematic constrained control framework for unmanned aerial vehicles based on explicit reference governor*”, Automatica.

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- [C28] **Y. Gautam**, M.M. Nicotra, “*Stability Analysis of Hypersampled Model Predictive Control*”, American Control Conference.
  - [C29] **T. Skibik**, M.M. Nicotra, “*A Terminal Set Feasibility Governor for Nonlinear Model Predictive Control*”, American Control Conference.

## Select Seminars

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- 2021 - PickNik Robotics: “*Explicit Reference Governor for Safe Human Robot Interaction*”
- 2021 - CU Boulder: “*Theory and Applications of Real-Time Constrained Control*”
- 2020 - AFRL: “*Real-time Optimization for Constrained Control and Autonomy*”
- 2018 - NREL: “*Safe Fast-Charging of Li-ion Batteries*”
- 2017 - CU Boulder: “*Constrained Control of Nonlinear Systems*”