Francesco Bullo

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Current Academic Employment

Distinguished Professor (since 2022; Assoc Prof 2004 - 2008, Prof 2008-2022), Department of Mechanical Engineering
Chair (Jul 2013 - June 2017), Department of Mechanical Engineering
Affiliate, Dynamical Neuroscience Program
Affiliate, Center for Control, Dynamical Systems and Computation
Affiliate, Department of Computer Science
Affiliate, Department of Electrical and Computer Engineering
University of California at Santa Barbara *Summer 2004 – present*

Previous Academic Employment

Research Assistant Professor, Coordinated Science Laboratory
Assistant Professor, Department of General Engineering
Affiliate, Department of Electrical and Computer Engineering & Department of Aerospace Engineering
University of Illinois at Urbana-Champaign *Fall 1998 – Summer 2004*

Education

Ph.D., Control and Dynamical Systems, California Institute of Technology, Aug 1998
Laurea (joint B.S./M.S. equivalent), Electrical and Computer Engineering, University of Padova, Italy, Jun 1994

Research Interests

Multi-agent systems and complex networks with application to robotic and multi-vehicle coordination, distributed computing and optimization, power networks, sensor/actuator networks, social networks and camera networks. Earlier work on vehicle routing, geometric control, and motion planning.

Research Awards and Honors

AAIA, Fellow, (Asia-Pacific Artificial Intelligence Association), 2023
ASME Fellow, Class of 2022
Sackler Lecturer, May 2022, Institute of Advanced Studies, Tel Aviv University
SIAM Fellow, Class of 2019
"For contributions to geometric control, distributed control, and network systems with application to robotic coordination, power grids, and social networks."
Distinguished Scientist Award, PIFI program, Chinese Academy of Sciences, 2018
IFAC Fellow, Class of 2017
"For contributions to network systems and distributed control with application to robotic coordination and power grids."
Distinguished Lecturer, IEEE Control Systems Society, 2016-2018
Distinguished Member Award, IEEE Control Systems Society, 2015
IEEE Fellow, Class of 2010
"For contributions to geometric and cooperative control with applications to mechanical and robotic systems"
Young Investigator Award, Office of Naval Research, 2003
Xerox Foundation Award for Faculty Research, UIUC College of Engineering, 2003
Earl C. Anthony Institute Fellowship, California Institute of Technology, Sep 1995 - Aug 1996
Laurea, Summa Cum Laude, University of Padova, Italy, 1994
Education Abroad Program Fellowship, University of California at San Diego, 1992-1993

Paper Recognitions
IEEE Control Systems Letters Outstanding Paper Award, 2024
O. Hugo Schuck Best Paper Award, American Automatic Control Council, 2023
Outstanding Paper Award, IEEE Transactions on Control of Network Systems, 2016
Guillemin-Cauer Best Paper Award, IEEE Transactions on Circuits & Systems, 2016
IFAC Automatica Best Paper Award, 2014
SIAG/CST Best Paper Prize, SIAM Journal on Control and Optimization, 2013
O. Hugo Schuck Best Paper Award, American Automatic Control Council, 2011
Article selection for inclusion in SIGEST section of SIAM Review, Mar 2009
Outstanding Paper Award, IEEE Control Systems Magazine, 2008
Best Student Paper Award Winner (as advisor): CDC 2002, ACC 2006, ACC 2010
Best Student Paper Award Finalist (as advisor): ICRA 2002, ACC 2005, CDC 2005, CDC 2007, ECC 2013, ACC 2022
Paper recognized as 2017 Google Scholar Classic Papers in the area of Automation and Control Theory

Teaching and Mentoring Awards
Outstanding Graduate Mentor Award, UCSB Academic Senate, 2015
Instructional Improvement Award, UCSB Academics Program, 2010
Primo Professor, Kiosk UCSB Student Handbook, 2008-2010
Outstanding Faculty Member, Department of Mechanical Engineering, UCSB, 2008
Outstanding Advisor Award, UIUC College of Engineering, 2004
List of Teachers Ranked as Excellent by their Students, UIUC, Spring 2001
Gamma Epsilon Excellence in Teaching Award, General Engineering Department, UIUC, 2001

Selected Invited Lectures (P=Plenary, SP=SemiPlenary, K=Keynote, D=Distinguished, I=Invited Lecture)

(K): 3rd International Conference on Computers and Automation, online, Dec 2023
(P): 19th Red Raider Symposium on Differential Geometry and Integrable Systems, Lubbock, TX, Apr 2023
(P): 61th IEEE Conference in Decision and Control, Cancun, Mexico, Dec 2022
(K): 10th Int. Symposium on Computational Intelligence and Industrial Applications (ISCIIA), online, Sep 2022
(K): 9th SIAM Workshop on Network Science (NS22), online, Sep 2022
(K): 7th Asia-Pacific Conference on Intelligent Robot Systems (ACIRS), online, Jul 2022
(K): 7th Int. Workshop on Social Sensing (SocialSens 2022), Atlanta, Georgia, Jun 2022
(K): 2nd Int. Symposium on Automation, Mechanical and Design Engineering, Beijing, China, Dec 2020
(P): 20th Int. Conference on Control, Automation and Systems, Busan, Korea, Oct 2020
(K): 3rd Int. Symposium on Swarm Behavior and Bio-Inspired Robotics, Okinawa, Japan, Nov 2019
(D): Colloquia Roberto Tempo on Automatica, CNR and Politecnico di Torino, Turin, Italy, Apr 2019
(P): Society of Instrument and Control Engineers Annual Conference, Nara Kasugano, Japan, Sep 2018
(P): 37th Chinese Control Conference, Wuhan, China, Jul 2018
(D): Kwan Chao-Chi Distinguished Lecture, Chinese Academy of Science, Jun 2018
(K): 30th Chinese Control and Decision Conference, Shenyang, China, Jun 2018
(P): 10th ASME Dynamic Systems and Control Conference, Tysons Corner, VA, USA, Oct 2017
(P): 14th SIAM Conference on Control & Its Applications, Pittsburgh, PA, USA, Jul 2017
(P): 3rd Indian Control Conference, IIT Guwahati, India, Jan 2017
(D): 28th Chinese Control and Decision Conference, Yinchuan, China, May 2016
(P): 54th IEEE Conference in Decision and Control, Osaka, Japan, Dec 2015
(K): 15th Anniversary Celebration, Department of Mechanical Engineering, UC Riverside, May 2015
(P): 16th Latin American Congress of Automatic Control, Cancún, México, Oct 2014
(I): CDS@20, CDS 20th Anniversary Workshop, Caltech, USA, Aug 2014
(P): 11th Int. Symp. on Distributed Autonomous Robotic Systems (DARS), Baltimore, MD, USA, Nov 2012
(SP): 20th Int. Symp. on Mathematical Theory of Networks and Systems (MTNS), Melbourne, Australia, Jul 2012
(P): 5th Georgia Tech Decision & Control Student Symposium, Atlanta, GA, USA, Apr 2012
(P): 11th SIAM Conference on Control & Its Applications, Baltimore, MD, USA, Jul 2011
(D): 2nd IFAC W. on Distributed Estimation & Control in Networked Systems (NECSYS), Annecy, France, Sep 2010
(D): Symposium on Recent Trends in Networked Systems and Cooperative Control, Stuttgart, Germany, Sep 2009
(P): 17th IEEE Int. Conference on Control Applications (CCA), Saint Petersburg, Russia, Jul 2009
(D): 5th Int. Conf. on Applied Mathematics and Computing, Plovdiv, Bulgaria, Aug 2008
(P): 9th Workshop on Hybrid Systems: Computation and Control (HSCC), Santa Barbara, CA, USA, Mar 2006
(P): 25th Benelux Meeting on Systems and Control, Heeze, The Netherlands, Mar 2006
(P): Workshop on Networked Embedded Sensing and Control, South Bend, IN, USA, Oct 2005
(SP): 16th Int. Symp. on Mathematical Theory of Networks and Systems (MTNS), Leuven, Belgium, Jul 2004
(P): 2nd IFAC Workshop Lagrangian & Hamiltonian Methods for Control, Seville, Spain, Apr 2003

URL Links

- Latest version of this CV: https://fbullo.github.io/fbullo-cv.pdf
- Orcid ID: http://orcid.org/0000-0002-4785-2118
- Google Scholar: https://scholar.google.com/citations?hl=en&user=stCtR0QAAAAJ
- ResearcherID: http://www.researcherid.com/rid/B-8146-2013
- Scopus: http://www.scopus.com/authid/detail.url?authorId=35557864500

Visiting and External Positions

- Visiting Scholar, Australian National University, Canberra, Australia, Aug 2007
- Visiting Professor, University of Cagliari, Italy, Jul 2010
- FIRST Scholar Visiting Professor, University of Colorado at Boulder, Jul 2012
- Member, Scientific Committee, Thematic semester on Network Dynamics and Resilence, Fall 2019, Dipartimento di Scienze Matematiche G. L. Lagrange, Politecnico di Torino, Italy
- Member, Doctoral School Board, Ph.D. Program in Modeling, Engineering Risk and Complexity, Scuola Superiore Meridionale (SSM), University of Naples Federico II, Italy, Jul 2021-present
- Member, Technical Advisory Board of Network Systems Learning, Control and Evolution Group, IIT Madras, Jun 2021 - May 2023

Lectures

(2024): Rutgers University, Caltech, MIT, Northeastern University, UC San Diego (BobFest), Washington University in St. Louis, EPFL (Lausanne, Switzerland)

(2023): Red Raider Symposium (Lubbock, Texas), University of Padova (Intelligent Network Systems Workshop), Engineering and Science Seminar Peking University (China), ACC Workshop on Contraction Theory (San Diego), Zhejiang University (Distinguished lecture, SDG Global Summer School, China, Elliit Symposium on Network Dynamics and Control (Linköping, Sweden), Creative Convergence Workshop Princeton, 3rd International Conference on Computers and Automation (Paris, France), Workshop on Emerging Challenges of Network-Enabled Control and Optimization (Singapore)

(2022): Masry Memorial Symposium at UC San Diego, NYU, IIT Madras, Workshop Synchronization in Natural and Engineering Systems (online), University of Iowa, Caltech, Tel Aviv University (Israel), SocialSens22 (Atlanta, Georgia), Asia-Pacific Conference on Intelligent Robot Systems, S.I.D.R.A. PhD Summer School (Italian Control Systems Society, Bertinoro, Italy), SIAM Network Science Workshop (online), Control Days Workshop (Università di Padova, Italy), Symposium on Computational Intelligence and Industrial Applications (online), IEEE CSS Control Days and ITTK (online), Universita' di Napoli, IEEE CDC (Cancun, Mexico)

(2021): Michigan State University, Tel-Aviv University (Israel), Universita' di Napoli, Louisiana State University, NIT Patna (India), Robotics and Computer Science World Forum (online), Beijing Institute of Technology, Modeling, Estimation, and Control Conference (invited tutorial session), Universita' di Napoli (SSM)

(2020): Stanford, UCSB Center for Center for Information Technology and Society, ICASS (Busan, Korea), UC Merced, Beijing Institute of Technology, Universita' di Napoli, CDC COVID-19 Focus Sessions, CDC Workshop on Social Economic Networks, Symposium on Automation, Mechanical and Design Engineering (Beijing, China)

(2019): DTRA, USC, Universita di Bologna (Italy), Politecnico di Torino (Colloquia Roberto Tempo on Automatica, Italy), University of Washington Seattle, Army Research Laboratory, Georgia Tech, Politecnico di Torino (Workshop on Infrastructure Networks), Politecnico di Torino (Workshop on Social, Economic and Financial Networks)

(2018): Chinese Control and Decision Conference (keynote, Shenyang), Northeastern University (China), Shenyang Institute of Automation (China), Kwan Chao-Chih Distinguished Lecture (AMSS, Beijing, China), Peking University, Beijing Institute of Technology, CAS Worskhop on Distributed Control and Multi-Agent Systems (Beijing, China), HauserFest (Workshop at ACC Milwaukee), Chinese Control Conference (plenary, Wuhan), Huazhong University of Science and Technology, Zheijiang University, SICE Conference (plenary, Nara, Japan), University of South Florida (Forum on Robotics & Control Engineering), UC Irvine

(2017): IIT Bombay, IIT Guwahati (plenary talk, Indian Control Conference), SIAM CT&A Conference (Pittsburgh, plenary talk), University of Texas at Dallas, ASME DSCC Conference, University of Southern California, UC San Diego, University of Toronto (Distinguished Lecture)

(2016): 1st SoCal Robotics Symposium (UCSD), Chinese Academy of Science (Distinguished Lecture, National Center for Mathematics and Interdisciplinary Sciences, Beijing, China), Chinese Control and Decision Conference (Yinchuan, China), UT Austin (Conference on Opinion Dynamics), MIT, Harvard, BasarFest at IEEE CDC (Las Vegas, USA)

(2015): Pacific Northwest National Lab, UC Riverside (keynote speaker, 15th Anniversary Celebration, ME Department), MorseFest at IEEE CDC (Osaka, Japan), IEEE CDC (Osaka, Japan)

(2014): University of New Mexico (Distinguished Lecture Series in Cyberphysical Systems), CDS 20th Anniversary Workshop (Caltech), Latin American Congress of Automatic Control (Cancún, México), SoCal Symp on Network Economics and Game Theory (Caltech)

(2013): Duke University, Northwestern University (Featured Speaker, Complex Systems Seminar Series), SIAM CT&A Conference (San Diego, CA), Allerton Conference, NSF Workshop on Future Power Systems (Washington DC), CDC Workshop on Synchronization and Control (Florence, Italy)

(2012): Lund Institute of Technology (Sweden), KTH Royal Institute of Technology (Sweden), UC San Diego, ICB Conference, Yale University, UTRC, Georgia Tech, Tsinghua University (Int Workshop on Emerging Frontiers in System and Control, Beijing, China), 32nd Annual CNLS Conference (Los Alamos National Lab), RMIT University (Melbourne), University of Melbourne (Australia), University of Colorado at Boulder, UC Riverside, NSF CPS PI Meeting, University of Texas Dallas, Johns Hopkins University, DARS Conference, Tutorial session at IEEE CDC in Maui

(2011): Baltimore (SIAM CT 11), Systems Security Workshop at IEEE CDC in Orlando

(2010): UC San Diego (ITA Workshop), University of New Mexico, Los Alamos National Laboratory, Massachusetts Institute of Technology, ARL Adelphi Laboratory Center, California Institute of Technology, University of Southern California, University of Illinois at Urbana-Champaign, Northwestern University, University of Illinois at Chicago, University of Cagliari (Italy), CNRS Supélec (France), UC Irvine

(2009): UC San Diego (ITA Workshop), University of Liege (Belgium), ICB Conference, University of Washington, Carnegie Mellon University, Block Island Workshop on Swarming, University of Lecce (Italy), University of Stuttgart (Germany, NE{S|T}COC Symposium), ETH Zürich (Switzerland)

(2008): UC San Diego (ITA Workshop), University of Siena (Italy), University of Pisa (Italy), UC Los Angeles, Yale University, City College of New York, University of Pennsylvania, Massachusetts Institute of Technology, Yale University (Frontiers in Distributed Communication, Sensing and Control Workshop), Johns Hopkins University

(2007): University of Illinois, Georgia Tech (RSS Workshop on Robotic Sensor Networks), Australian National University (Canberra, ACT)

(2006): UC Santa Cruz, UC Los Angeles (IPAM), Benelux Meeting on Systems and Control (Netherlands), HSCC (Santa Barbara), UC Los Angeles (Center for Systems, Dynamics and Control), Caltech, Boston University (NSF Workshop on Future Directions in Networked Sensing), Tokyo Institute of Technology (Japan)

(2005): Universitad Autònoma de Barcelona (Spain), California Institute of Technology (Workshop on Control, Estimation, and Communication), UC Berkeley, University of Notre Dame (Workshop on Networked Embedded Sensing and Control), EPFL (Workshop on Networked Embedded Systems and Distributed Sensing)

(2004): CNR Roma (Italy), Yale University, Boston University, Carnegie Mellon University, K. U. Leuven (Belgium), Ohio State University, Northwestern University

(2003): University of Pisa (Italy), Kyoto University (Japan), UC Santa Barbara, Block Island Workshop on Swarming, Wright-Patterson AFB, Stanford University, Honeywell, Virginia Tech, Caltech

(2002): Old Dominion University, University of Maryland at College-Park, University of Illinois at Chicago, Queen's University in Kingston (Canada), University of Twente (Netherlands)

(2001): California Institute of Technology, University of Pennsylvania, Massachusetts Institute of Technology, UC Santa Barbara, University of Padova (Italy)

(2000): Queen's University in Kingston (Canada), Arizona State University, Washington University in St. Louis, SISSA (Triest, Italy)

(1999): Mathematisches Forschungsinsitut Oberwolfach (Germany), University of Michigan, UC Berkeley, Washington University in St. Louis, Princeton University

(1998): UC Berkeley, UC San Diego

Advising

Current Graduate Students

(i) Alexander Davydov, Ph.D. student, Mechanical Engineering, UCSB
- Mentoring: Chair of Doctoral Committee, Sep 20 - present
- Award: UCSB Chancellor's Fellowship
- Award: NSF Graduate Research Fellowship
- Award: O. Hugo Schuck Best Paper Award, American Automatic Control Council, 2023
- Award: IEEE Control Systems Letters Outstanding Paper Award, 2024

(ii) Veronica Centorrino, Ph.D. student, Scuola Superiore Meridionale, Napoli, Italy
- Mentoring: Co-Chair of Doctoral Committee with Prof. Giovanni Russo, Jun 21 - present
- Award: Doctoral fellowship, Modeling and Engineering Risk and Complexity, SSM
- Award: IEEE Control Systems Letters Outstanding Paper Award, 2024

(iii) Gilberto Díaz-García, Ph.D. student, ECE
- Mentoring: Co-Chair of Doctoral Committee with Prof. Jason Marden, Sep 21 - present

(iv) Anand Gokhale (Ph.D. student, ME UCSB)
- Mentoring: Chair of Doctoral Committee, Sep 22 - present

(v) Yohan John (Ph.D. student, ME UCSB)
- Mentoring: Chair of Doctoral Committee, Sep 22 - present

(vi) Abed Mussafar (Ph.D. student, ME UCSB)
- Mentoring: Chair of Doctoral Committee, Jan 23 - present

(vii) Simone Bettetti (Ph.D. student, Universita' di Padova, Italy)
- Mentoring: CoChair of Doctoral Committee with Professors Sandro Zampieri and Giacomo Baggio, Jan 23 - present

(viii) Rubén Blasco-Aguado (Ph.D. student, Universita' di Padova, Italy)
- Mentoring: Co-Chair of Doctoral Committee with Prof. Giovanni Russo, May 24 - present
- Award: Doctoral fellowship, Modeling and Engineering Risk and Complexity, SSM

(ix) Arie Ogranovich (Ph.D. student, ME UCSB)
- Mentoring: Chair of Doctoral Committee, Sep 24 - present
- Award: UCSB Central Campus Fellowships

(x) Arvind Ragghav (Ph.D. student, ME UCSB)
- Mentoring: Chair of Doctoral Committee, Sep 24 - present

(xi) Madelyn Shapiro (Ph.D. student, CS UCSB)
- Mentoring: CoChair of Doctoral Committee, Sep 24 - present
- Award: NSF CSGrad4US Fellowship

Former PhD Students and Placement after Graduation (as last available)

(i) Gregory J. Toussaint, Ph.D., Electrical and Computer Engineering, UIUC
- Mentoring: Co-Advisor with Prof. Tamer Başar, Aug 98 - Jun 00
- Initial Placement: Assistant Professor, Electrical and Computer Engineering Department, US Air Force Academy, Colorado

(ii) W. Todd Cerven, Ph.D., Aeronautical and Astronautical Engineering, UIUC
- Mentoring: Co-Advisor and Co-Chair of Doctoral Committee with Prof. Victoria Coverstone, Aug 98 - Jun 03
- Initial Placement: Member of Technical Staff, Aerospace Corporation, Chantille, Virginia
- Current Placement: Senior Member of Technical Staff, Aerospace Corporation, Chantille, Virginia
- Award: NSF Graduate Fellowship 1997-2001
- Award: AIAA Guidance, Navigation and Control Graduate Award 2001
- Award: Aerospace Illinois Space Consortium Fellowship 2003

(iii) Giuseppe Notarstefano, Ph.D., Electrical and Computer Engineering, University of Padova, Italy
- Mentoring: Co-Advisor with Prof. Ruggero Frezza, Jan 04 - Apr 07
- Current Placement: Professor, Universita' di Bologna
- Award: 2014 Starting Grant by the European Research Committee

(iv) Anurag Ganguli, Ph.D., Electrical and Computer Engineering, UIUC

Mentoring:	Advisor and Chair of Doctoral Committee, Aug 02 - Apr 07
Initial Placement:	Senior Research and Development Engineer, UtopiaCompression Corporation, Los Angeles, California
Current Placement:	PlusAI, California
Award:	Best Student Paper Award Finalist, 2005 American Control Conference
Award:	Best Student Paper Award Winner, 2006 American Control Conference
Award:	Carver Research Fellow, University of Illinois at Urbana Champaign

(v) Ketan Savla, Ph.D., Electrical and Computer Engineering, UCSB

Mentoring:	Advisor and Chair of Doctoral Committee, Aug 03 - Aug 07
Initial Placement:	Postdoctoral Scientist, MIT
Current Placement:	Associate Professor & John and Dorothy Shea Early Career Chair in Civil Engineering, University of Southern California
Award:	Best Student Paper Award Finalist, 2005 IEEE Conf. on Decision and Control
Award:	2009 Best PhD Thesis Award, Center for Control, Dynamical Systems and Computation, UCSB
Award:	2017 Eckman Award, American Automatic Control Council

(vi) Sara Susca, Ph.D., Electrical and Computer Engineering UCSB

Mentoring:	Advisor and Chair of Doctoral Committee, Sep 04 - Dec 07
Initial Placement:	Senior Research Engineer, Honeywell Research Labs, Minneapolis, Minnesota
Current Placement:	Project Manager, Jet Propulsion Laboratory, California

(vii) Nikolaj Nordkvist, Ph.D., Mathematics, Technical University of Denmark

Mentoring:	Co-Advisor with Prof. Paul Hjort, Sep 05 - Jan 08
Initial Placement:	Postdoctoral Scientist, University of Hawaii at Manoa, Hawaii
Current Placement:	Research Scientist, Numerica Corporation, Fort Collins, Colorado

(viii) Stephen L. Smith, Ph.D., Mechanical Engineering, UCSB

Mentoring:	Advisor and Chair of Doctoral Committee, Sep 05 - Sep 09
Initial Placement:	Postdoctoral Scientist, MIT
Current Placement:	Professor and Canada Research Chair, Electrical and Computer Engineering, University of Waterloo, Canada
Award:	NSERC Graduate Scholarship
Award:	Best Student Paper Award Finalist, 2007 IEEE Conf. on Decision and Control

(ix) Shaunak D. Bopardikar, Ph.D., Mechanical Engineering, UCSB

Mentoring:	Co-Advisor and Co-Chair of Doctoral Committee with Prof. Joao Hespanha, Sep 05 - Mar 10
Initial Placement:	Postdoctoral Scientist, UCSB
Initial Placement:	Senior Research Scientist, United Technology Research Center, Berkeley, California
Current Placement:	Assistant Professor, Electrical and Computer Engineering, Michigan State University

(x) Karl J. Obermeyer, Ph.D., Mechanical Engineering, UCSB

Mentoring:	Advisor and Chair of Doctoral Committee, Sep 05 - Jun 10
Initial Placement:	Controls Engineer, Air Force Research Lab, Wright-Patterson AFB, Ohio
Initial Placement:	Research Scientist, Numerica Corporation, Loveland, Colorado
Current Placement:	Tracking Research Lead, Standard Cognition
Award:	DARPA SMART Fellowship 2006-2010

(xi) Sandra H. Dandach, Ph.D., Mechanical Engineering, UCSB

Mentoring:	Advisor and Chair of Doctoral Committee, Aug 07 - Jun 11
Initial Placement:	Senior Research Scientist, United Technology Research Center, Hartfort, Connecticut
Current Placement:	Advanced Technologies Research Lead, Meta

(xii) Joey W. Durham, Ph.D., Mechanical Engineering, UCSB

Mentoring:	Advisor and Chair of Doctoral Committee, Sep 07 - Jun 11
Initial Placement:	Research Scientist, Kiva Systems, Boston, Massachusetts
Current Placement:	Manager of Research and Advanced Development, Amazon Robotics
Award:	UCSB LEAPS Teaching Fellowship

(xiii) Fabio Pasqualetti, Ph.D., Mechanical Engineering, UCSB

Mentoring:	Advisor and Chair of Doctoral Committee, Jan 08 - Sep 12
Initial Placement:	Postdoctoral Scientist, UCSB
Current Placement:	Professor, Mechanical Engineering, UC Riverside
Award:	2012 Excellence Fellowship, Mechanical Engineering, UCSB
Award:	2012 Best PhD Thesis Award, Mechanical Engineering, UCSB
Award:	Outstanding Paper Award, IEEE Transactions on Control of Network Systems, 2016

(xiv) Vaibhav Srivastava, Ph.D., Mechanical Engineering, UCSB

Mentoring:	Advisor and Chair of Doctoral Committee, Sep 07 - Dec 12
Initial Placement:	Postdoctoral Scientist and Associate Research Scholar, Princeton University
Current Placement:	Assistant Professor, Electrical and Computer Engineering, Michigan State University

(xv) Anahita Mirtabatabaei, Ph.D., Mechanical Engineering, UCSB

Mentoring:	Advisor and Chair of Doctoral Committee, Sep 07 - Jun 13
Initial Placement:	Research Engineer, Bosch Research and Technology Center, Palo Alto, California
Current Placement:	Senior Machine Learning Engineer, Glassdoor

(xvi) Florian Dörfler, Ph.D., Mechanical Engineering, UCSB

Mentoring:	Advisor and Chair of Doctoral Committee, Sep 09 - Sep 13
Award:	Regents Special International Fellowship, UCSB, 2009
Award:	Best Student Paper Award Winner, 2010 American Control Conference
Award:	O. Hugo Schuck Best Paper Award, American Automatic Control Council, 2011
Award:	Frenkel Foundation Fellowship, UCSB, 2011
Award:	Best Student Paper Award Finalist, 2013 European Control Conference
Award:	IFAC Automatica Best Paper Award, 2014
Award:	2015 Best PhD Thesis Award, Mechanical Engineering, UCSB
Award:	Guillemin-Cauer Best Paper Award, IEEE Transactions on Circuits & Systems, 2016
Initial Placement:	Assistant Professor, UC Los Angeles
Current Placement:	Associate Professor, Automatic Control Laboratory, ETH Zurich

(xvii) Rushabh Patel, Ph.D., Mechanical Engineering, UCSB

Mentoring:	Advisor and Chair of Doctoral Committee, Sep 10 - Apr 15
Award:	Northrop Grumman Fellowship, Northrop Grumman Aerospace Systems, 2010
Award:	Barpal Fellowship, 2011 and 2012
Award:	New Venture Competition 1st Place – Market Pull, UCSB, 2015
Initial Placement:	Senior Engineer, Research and Development Center, Northrop Grumman Aerospace Systems, Redondo Beach, CA
Current Placement:	Senior Director, GNC and Software at Skyryse

(xviii) John W. Simpson-Porco, Ph.D., Mechanical Engineering, UCSB

Mentoring:	Advisor and Chair of Doctoral Committee, Sep 10 - Sep 15
Award:	CCDC Outstanding Scholar Fellowship
Award:	NSERC Post-Graduate Scholarship
Award:	Frenkel Foundation Fellowship, UCSB, 2014
Award:	IFAC Automatica Best Paper Award, 2014
Award:	2015 Best PhD Thesis Award, Center for Control, Dynamical Systems and Computation, UCSB
Initial Placement:	Visiting Scientist, ETH
Current Placement:	Assistant Professor, Electrical and Computer Engineering, University of Toronto

(ix) Pushkarini Agharkar, Ph.D., Mechanical Engineering, UCSB

Mentoring:	Advisor and Chair of Doctoral Committee, Sep 11 - Dec 15
Initial Placement:	Data Scientist, airisDATA, Princeton, NJ
Current Placement:	Software Engineer, Google, Toronto

(xx) Jeffrey R. Peters, Ph.D., Mechanical Engineering, UCSB

Mentoring:	Advisor and Chair of Doctoral Committee, Sep 11 - Jun 17
Award:	CCDC Outstanding Scholar Fellowship
Award:	Winner, 2016 Mechanical Engineering Grad Slam
Initial Placement:	Senior Research Engineer and Robotics AI Expert, United Technology Research Center, East Hartford, Connecticut
Current Placement:	Technical Account Manager, Yardi Systems Inc

(xxi) Wenjun Mei, Ph.D., Mechanical Engineering, UCSB

Mentoring:	Advisor and Chair of Doctoral Committee, Sep 11 - Mar 18
Initial Placement:	PostDoctoral Scientist, ETH, Zurich
Current Placement:	Assistant Professor, Department of Mechanics and Engineering Science, Peking University, China

(xxii) Mishel George, Ph.D., Mechanical Engineering, UCSB

Mentoring:	CoAdvisor and CoChair of Doctoral Committee with Prof. Campàs, Sep 12 - Jun 18
Award:	Winner, 2014 Mechanical Engineering Grad Slam
Initial Placement:	Research Engineer, Motion Planning and Control, Scotty Labs, San Francisco, California
Current Placement:	Software Engineer, Planner and Controls, Waymo

(xxiii) Shadi Mohagheghi, Ph.D., Electrical and Computer Engineering, UCSB

Mentoring:	Chair of Doctoral Committee, Sep 15 - Apr 20
Award:	NSF IGERT Fellowship
Initial Placement:	Navigation and Geo-Positioning Engineer, Aerospace Corporation, LA
Current Placement:	Technical Account Manager, MathWorks, Torrance, CA

(xxiv) Xiaoming Duan, Ph.D., Mechanical Engineering, UCSB

Mentoring:	Chair of Doctoral Committee, Sep 16 - Dec 20
Initial Placement:	Postdoc, Department of Aerospace Engineering and Engineering Mechanics, UT Austin
Current Placement:	Assistant Professor, Shanghai Jiao Tong

(xxv) Elizabeth Y. Huang, Ph.D., Mechanical Engineering, UCSB

Mentoring:	Chair of Doctoral Committee, Sep 16 - Dec 20
Initial Placement:	Research Engineer, Systems Technology Inc, Hawthorne, CA
Current Placement:	GNC Engineer, Skyryse

(xxvi) Pedro Cisneros-Velarde, Ph.D., Electrical and Computer Engineering, UCSB

Mentoring:	Chair of Doctoral Committee, Sep 16 - Jun 21
Award:	NSF IGERT Fellowship
Initial Placement:	postdoc, University of Illinois at Urbana-Champaign
Current Placement:	Machine Learning Scientist, VMware

(xxvii) Kevin D. Smith, Ph.D., Electrical and Computer Engineering, UCSB

Mentoring:	Chair of Doctoral Committee, Sep 17 - Mar 23
Award:	NSF IGERT Fellowship
Initial Placement:	Senior Algorithms Engineer, Utilidata, Providence, RI

(xxviii) Francesco Seccamonte, Ph.D., Mechanical Engineering, UCSB

Mentoring:	Chair of Doctoral Committee, Sep 19 - Sep 23
Initial Placement:	Staff Engineer for Autonomy Algorithms, Ford, Palo Alto

(xxix) Sean Jaffe, Ph.D., Computer Science, UCSB

Mentoring:	CoChair of Doctoral Committee with Prof. Ambuj Singh, Aug 22 - Sep 24
Initial Placement:	Software Engineer, Celonis, New York City

Former PostDoc Advisees and Employment after Graduation

(i) Jorge Cortés (Ph.D., Math, Universidad Carlos III, Spain, Sep 2001). Visiting PhD Student ('01) and PostDoc, CSL UIUC, Sep02-Sep04, Professor, Mechanical and Aerospace Engineering, University of California at San Diego

(ii) Sonia Martínez (Ph.D., Math, Universidad Carlos III, Spain, Feb 2002). Visiting PhD Student ('01) and PostDoc, UCSB, Dec03-Dec05, Associate Professor, Mechanical and Aerospace Engineering, University of California at San Diego

(iii) Kurt Plarre (PostDoc, CCDC and ICB, May06-Jul08), Data Analyst, ALMA Observatory (Chile)
(iv) Gábor Orosz (PostDoc, CCDC, Sep08-Aug10), Associate Professor, Mechanical Engineering, University of Michigan
(v) Ruggero Carli (PostDoc, CCDC, Feb08-Aug10), Associate Professor, Department of Information Engineering, Universitá di Padova (Italy)
(vi) Fabio Pasqualetti (Oct 2012 – Jun 2013), Assistant Professor, Mechanical Engineering, UC Riverside
(vii) Peng Jia (Ph.D., Electrical and Computer Engineering, McGill University, 2010; Postdoc and Assistant Project Scientist, Feb 2012 – Aug 2016), Data Analyst, Discover Financial Services, Arizona
(viii) Dario Paccagnan, (Ph.D., ETH Zürich, Automatic Control Laboratory; Postdoc, Feb 2019 – Aug 2020), Assistant Professor, Computer Science, Imperial College London
(ix) Saber Jafarpour, (Ph.D., Applied Mathematics, Queen's University; Postdoc Jul 2016 - Jul 2021), Postdoc, GeorgiaTech
(x) Robin Delabays, (Ph.D., Mathematics, University of Geneva and University of Applied Sciences of Western Switzerland, 2018; Postdoc, Oct 2 - Aug 22), Assistant Professor, Energy Environment, HES-SO in Sion, Switzerland

Former M.S. Students and First Employment after Graduation

(i) Peter K. Sochacki (M.S., ECE UIUC, Jan 2000), Anderson Engineering
(ii) Arvind Hosagrahara, (M.S., GE UIUC, Jun 2001), MathWorks
(iii) Ross Gadient (M.S., GE UIUC, Jun 2001), Boeing
(iv) Timur Karatas (M.S., GE UIUC, Jun 2001)
(v) Craig Robinson (M.S., GE UIUC, Dec 2003), PhD student at UIUC
(vi) Mark Disch (M.S., ECE UIUC, Jun 2004), GE Energy
(vii) Sulema Aranda (M.S., ECE UIUC, Aug 2004), Lockheed Martin
(viii) Chunkai Gao (M.S., ME UCSB, Sep 2007), PhD student at UCSB
(ix) Nathan Owen (M.S., ME UCSB, Jun 2009), Boeing Space & Intelligence Systems
(x) Giulia Piovan (M.S., ME UCSB, Jun 2010), PhD student at UCSB
(xi) Lee Nguyen (M.S., ME UCSB, Jun 2010)
(xii) Markus Spindler (M.S., University of Stuttgart, Sep 2011), Alstom
(xiii) Diego Romeres (M.S., Universita di Padova, Dec 2012), PhD student at Universita di Padova
(xiv) Hedi Bouattour (M.S., University of Stuttgart, May 2013), Siemens
(xv) Basilio Gentile (M.S., Universita di Padova, Oct 2013), PhD student at ETH Zurich
(xvi) Benjamin Del Rosario (M.S., ME UCSB, December 2014), Vehicle Guidance Navigation and Control Engineer, Northrop Grumman Corporation
(xvii) Deepti Kannapan, (M.S., ME UCSB, June 2015), Member of Technical Staff, Aerospace Corporation, El Segundo, California
(xviii) Axel Haaker, (M.S., ME UCSB, Dec 2016), Assembler I, Medtronic Brain Therapies - Neurosurgery, Goleta
(xix) Franklin Zheng, (M.S., ME UCSB, Jun 2017), Field Support Engineer, Astronics
(xx) Celeste Bean, (MS candidate, ECE UCSB, June 2018), Electrical Engineer II, Benchmark Electronics, Tempe AZ
(xxi) Sean Wang, (MS candidate, ME UCSB, June 2018), PhD student at CMU

Professional Service

Elected President-Elect/President/President-Past, IEEE Control Systems Society, Jan 2017 - Dec 2019
Vice-President for Technical Activities, IEEE Control Systems Society, Jan 2011 – Dec 2012
Vice-President for Publications, IEEE Control Systems Society, Jan 2013 – Dec 2014
Long-Range Planning Committee, IEEE Control Systems Society, Jan 2011 – Dec 2014
Program Chair, 2016 IEEE Conference in Decision and Control, 2013-2016
Elected Member, Board of Governors, IEEE Control Systems Society, 2007-2009, 2011-2013, 2016-18
Chair, TC on Manufacturing Automation and Robotic Control, IEEE Control System Society, Jul 2004 - Dec 2008

Elected Chair, SIAM Activity Group on Control and Systems Theory (SIAG CST), Jan 2020 - Dec 2021
Chair, SIAG CST, Executive Committee, Jan 2020 - Dec 2021

Director, American Automatic Control Council, Jan-Dec 2018 and Jan 2020 - Dec 25

Chair, Outreach and Funding Committee, Network Science Society, 2022-2024

Member, IEEE, 1994-present (Member since 1994, Senior Member since 2003, Fellow since 2010)
Member, SIAM, 2000-present (Lifetime since 2010, Fellow since 2019)
Member, ASME, 2009-present (Fellow since 2022)
Member, AAAS, 2014-present

Member, Panel on Mechanical Science and Engineering at the Army Research Laboratory, organized by the National Academies of Sciences, Engineering, and Medicine, June 2016

Editorships:
- Editorial Board, Mathematics of Control, Signals, and Systems, Jan 2011 - Dec 2013
- Editorial Board, IEEE Transactions on Automatic Control, Jan 2005 - Dec 2008
- Editorial Board, SIAM Journal of Control and Optimization, Jan 2005 - Dec 2010
- Editorial Board, ESAIM: Control, Optimization, and the Calculus of Variations, Jan 2003 - Dec 2006
- Conference Editorial Board, IEEE Control System Society, Sep 1999 - May 2005
- Special issue of SIAM J. Control and Optim., "Control and Optimization in Cooperative Networks," Jan 2009
- Special issue of IEEE T. Autom Cntrl, "Security & Privacy of Distributed Algorithms and Network Systems", 2019

Conference Chair or Co-Chair
- CCDC Workshop on Vistas in Control. UC Santa Barbara, May 2013
- IFAC Workshop on Distributed Estimation and Control in Networked Systems, Santa Barbara, Sep 2012
- Santa Barbara Workshop: Decision, Dynamics and Control in Multi-Agent Systems, UC Santa Barbara, Jun 2011
- IFAC on Workshop Lagrangian & Hamiltonian Methods in Nonlinear Control, Nagoya, Jul 2006

Workshop Organizer or Organizing Committee:
- CDC Workshop on Contraction Theory, Milan, Italy, Dec 2024
- ACC Workshop on Contraction Theory, San Diego, CA, USA, May 2023
- CDS 20th Anniversary Workshop, Caltech, Pasadena, CA, USA, Aug 2014
- SIAM Conference on Control & Its Applications, San Diego, CA, USA, Jul 2013
- UCSB CCDC Workshop on Vistas in Control, May 2013
- Invited Tutorial Session on "Coupled Oscillators," IEEE Control and Decision Conference, Dec 2012
- UCSB CCDC Workshop on Vistas in Control, Nov 2011
- Workshop on "Dynamic Vehicle Routing," Robotics Science and Systems, Jun 2011
- Workshop on "Dynamic Vehicle Routing," American Control Conference, Jun 2010
- Invited MiniTutorial at SIAM Conference on Applications of Dynamical Systems, May 2009
- Workshop on "Distributed Control of Robotic Networks," IEEE Control and Decision Conference, Dec 2008
- Workshop on "Cooperative MultiAgent Systems," Centro De Giorgi, Pisa, Dec 2007
- MiniSymposium at SIAM Conference on Applications of Dynamical Systems, May 2005
- Workshop on "Geometric Control of Mechanical Systems," IEEE Control and Decision Conference, Dec 2004
- ONR Workshop on Autonomous and Intelligent Systems, UIUC, May 2003
- Workshop on Nonlinear Control of Mechanical Systems, UIUC, Oct 2002
- MiniSymposium at SIAM Conference on Control and Its Applications, Jul 2001

IFAC Workshop on Lagrangian and Hamiltonian Methods, Princeton, Mar 2000
Midwest Mechanical Motion Meeting, Fall 1999, 2000, 2001, 2002
Workshop on Mechanics, Dynamics and Control, Caltech, Dec 1997

Program Committees:
2001, 2003 and 2007 IEEE American Control Conference
2004, 2005, 2007, 2008, 2010 and 2012 IEEE Control and Decision Conference
2003 IEEE/RSJ International Conf. on Intelligent Robots & Systems
2006, 2014 Mediterranean Conference on Control Applications
2006 IEEE International Conference on Robotics and Automation
2006 Robotics: Science and Systems Conference
2006 IFAC Workshop on Multivehicle Systems
2009 Conference on Robot Communication and Coordination

Detailed list of IEEE CSS Activities 2017:

- President-Elect and Member of the Executive Committee
- Chair, Long Range Planning Committee
- Alternate Director, American Automatic Control Council
- Elected Member, Board of Governors
- Member, Outreach Task Force

Detailed list of IEEE CSS Activities 2018:

- President and Chair of the Executive Committee
- Member, Long Range Planning Committee
- Member, Nominating Committee
- IEEE Director, American Automatic Control Council
- Elected Member, Board of Governors

Detailed list of IEEE CSS Activities 2019:

- Past President
- Member, Long Range Planning Committee
- Chair, Nominating Committee

University Service

Mechanical Engineering Department
ViceChair, Jul 2006 - Jun 2010
Graduate Advisor and Chair of the ME Graduate Committee, Jul 2006 - Jun 2010
Member, ME Graduate Committee, Sep 2005 - Jun 2006 & Sep 2010 - Jun 2012
Member, ME Space Committee, Jul 2004 - Jun 2008, (Chair) Jul 2008- Jun 2009, & Jul 2009 - Jun 2010
Member, Promotions/Merit Committee, Jul 2010– Jun 2011
Member, Faculty Search Committee, Jul 2012 - Jun 2013

UCSB Mechanical Engineering Department Chair, Jul 2013 - Jun 2017
Chair, MECE13 Search Cmte, Jul 2013 - Jun 2015 (no resulting hire)
Member, MECE11 Search Cmte, Jul 2013 - Jun 2014 (hire: Prof. P. Luzzatto-Fegiz, Fluids)
Member, MECE14 Search Cmte, Jul 2013 - Jun 2014 (hire: Lecturer T. Susko, Design)
Member, MECE15 Search Cmte, Jul 2014 - Jun 2015 (hire: Prof. S. Daly & I. Beyerlein, Mechanics of Materials)
Member, MECE16 Search Cmte, Jul 2015 - Jun 2016 (hire: Profs. E. Hawkes, Soft Robotics)
Member, MECE17a Search Cmte, Jul 2016 - Jun 2017 (hire: Prof. B. Liao, Nanoscale Thermal Sciences)
Member, MECE17 Search Cmte, Jul 2016 - Dec 2017 (hire: Profs. A. Sauret & E. Dressaire, Fluids)†
Member, MECE13 Search Cmte, Jul 2015 - Feb 2018 (hire: Prof. B. Pruitt, MechanoBiology and NanoScience)†
(† : recruitments completed during successor's term)
Member, Merit and Promotion Committe, Jul 2013 - Jun 2017
Member, ABET Accreditation Renewal Committe, Jul 2014 - Jun 2015
Chair, 50th Anniversary Celebration Organizing Committee, Jul 2014 - Jun 2015
Member, PRP Preparation Committe, Jul 2014 - Jun 2017
Member, Professional Degree Program Committe, Jul 2014 - Jun 2015

Between July 2013 and June 2017, Professor Bullo served as Chair of the Mechanical Engineering Department at UC Santa Barbara. Under his guidance, the department hired nine new faculty members including four faculty from underrepresented groups. Regarding educational programs, the department started a new 5-year combined BS/MS program and a new multidisciplinary capstone projects curriculum. The department received a full 6-year ABET re-accreditation as well as outstanding evaluations from a 2017 PRP review. Regarding facilities management, the department invested in broad range of renovations, including all undergraduate laboratories, classroom and conference rooms, all common areas, the main office, the former ME cleanroom facility, and two large student office laboratories. Regarding governance and finances, the department developed a broad range of new and revised policies, including bylaws, workload policy, teaching evaluations, and space use. Finally, regarding communication and development, the department embarked on a comprehensive marketing effort with redesigned website, logos, departmental posters, document templates, and fliers. The department organized a high-visibility 50th anniversary celebration in 2014, improved the visibility of the yearly design fair, and started a Distinguished Alumni Award.

UCSB College of Engineering
Member, Faculty Executive Committee, Sep 2006 - Aug 2008 & Sep 2010 - Aug 2012
Member, Graduate Outreach and Advancement Committee, Jan 2007 - Jun 2010

UCSB Academic Senate and UCSB-wide Committees
Member, GMA Committee, Winter 2016
Member, Academic Senate Faculty Legislature, 2016-17, 2017-18
Member, Marine Science Institute Advisory Committee, 2016-2019
Member/ViceChair/Chair, Program Review Panel, 2018/19, 2019/20, and 2020/21
Member/ViceChair/Chair, Council on Planning and Budget, 2022/23, 2023/24, 2024/25
Member, Campus Planning Committee, 2024/25
Member, Campus Renewal Committee, 2024/25
Member, Board of Trustees, UCSB Foundation, 2024/25
Member, Chancellor's Coordinating Committee on Budget Strategy, 2024/25

UC Academic Senate
Member, University Committee on Planning and Budget, 2024/25
Member, UC EAP Finance Committee, 2024/25

Center for Control, Dynamical Systems and Computation
Associate Director, Jul '11 - Jun '13
Organizer, Seminar Series, Spring '06
Organizer, Workshop on Vistas in Control, Nov '11 & May '13

University Service at UIUC, 1998-2004
GE Teaching Committee, Fall 2000
GE Graduate Committee, Feb 1999 - Jun 2004
CSL Decision and Control Seminar Series, Co-organizer, Feb 1999 - Jun 2004

Publications

Manuscripts are listed in reverse chronological order. All manuscripts and related presentations are available electronically at https://fbullo.github.io/papers.
Citation records are available at: http://scholar.google.com/citations?hl=en&user=jfehy-UAAAAJ.

Books

- F. Bullo and A. D. Lewis. *Geometric Control of Mechanical Systems*. Springer, 2004. ISBN 0-387-22195-6. DOI: 10.1007/978-1-4899-7276-7. URL https://fbullo.github.io/gcms
- F. Bullo, J. Cortés, and S. Martínez. *Distributed Control of Robotic Networks*. Princeton University Press, 2009b. ISBN 978-0-691-14195-4. URL https://fbullo.github.io/dcrn (37.1K downloads during period 1jun08-15aug21)
- F. Bullo. *Lectures on Network Systems*. Kindle Direct Publishing, 1.7 edition, Apr. 2024b. ISBN 978-1986425643. URL https://fbullo.github.io/lns (8K downloads during period 1jun16-1mar22)
- F. Bullo. *Contraction Theory for Dynamical Systems*. Kindle Direct Publishing, 1.2 edition, 2024a. ISBN 979-8836646806. URL https://fbullo.github.io/ctds
- F. Bullo and S. L. Smith. *Lectures on Robotic Planning and Kinematics*. Unpublished Manuscript, 2022. URL https://fbullo.github.io/lrpk

Edited Books and Proceedings

- F. Bullo and K. Fujimoto, editors. *Lagrangian and Hamiltonian Methods for Nonlinear Control 2006*, volume 366 of *Lecture Notes in Control and Information Sciences*, 2007. Springer. ISBN 978-3-540-73889-3. DOI: 10.1007/978-3-540-73890-9. (Proceedings of the 3rd IFAC Workshop, Nagoya, Japan, July 2006)
- F. Bullo, J. Cortés, J. P. Hespanha, and P. Tabuada, editors. *Proceedings of the 3rd IFAC Workshop on Distributed Estimation and Control in Networked Systems*, 2012b. IFAC. ISBN 978-3-902823-22-9. (Santa Barbara, California, USA, September 2012)

Special Issues

- F. Bullo, J. Cortés, and B. Piccoli. Special issue on control and optimization in cooperative networks. *SIAM Journal on Control and Optimization*, 48(1):vii–vii, 2009c. DOI: 10.1137/SJCODC000048000001000vii000001
- Z. Chen, F. Pasqualetti, J. He, P. Cheng, H. L. Trentelman, and F. Bullo. Guest editorial: Special issue on security and privacy of distributed algorithms and network systems. *IEEE Transactions on Automatic Control*, 65(9): 3725–3727, 2020b. DOI: 10.1109/TAC.2020.3004329
- C. Beck, F. Bullo, G. Como, K. Drakopoulos, D. H. Nguyen, C. Nowzari, V. M. Preciado, and S. Sundaram. Special issue on mathematical modeling, analysis, and control of epidemics. *SIAM Journal on Control and Optimization*, 60(2):Si–Sii, 2022. DOI: 10.1137/22N975470

Journal Articles

[203] Z. Marvi, F. Bullo, and A. G. Alleyne. Robust and exponential stability in barrier-certified systems via contracting piecewise smooth dynamics. *IEEE Control Systems Letters*, 2024b. To appear

[202] A. Gokhale, A. Davydov, and F. Bullo. Proximal gradient dynamics: Monotonicity, exponential convergence, and applications. *IEEE Control Systems Letters*, 2024. DOI: 10.48550/arXiv.2409.10664

[201] J. Cheng, G. Chen, W. Mei, and F. Bullo. Multidimensional opinion dynamics with heterogeneous bounded confidences and random interactions. *Automatica*, Dec. 2023. To appear

[200] G. Chen, W. Su, W. Mei, and F. Bullo. Convergence of the heterogeneous Deffuant-Weisbuch model: A complete proof and some extensions. *IEEE Transactions on Automatic Control*, Feb. 2023. DOI: 10.1109/TAC.2024.3442952. To appear

[199] A. Davydov, A. V. Proskurnikov, and F. Bullo. Non-Euclidean contraction analysis of continuous-time neural networks. *IEEE Transactions on Automatic Control*, 2024b. DOI: 10.1109/TAC.2024.3422217. To appear

[198] R. Yan, X. Duan, R. Zou, X. He, Z. Shi, and F. Bullo. Multiplayer homicidal chauffeur reach-avoid games: A pursuit enclosure function approach. *Automatica*, 2024. DOI: 10.48550/arXiv.2311.02389. To appear

[197] W. Liu, J. Sun, G. Wang, F. Bullo, and J. Chen. Learning robust data-based LQG controllers from noisy data. *IEEE Transactions on Automatic Control*, 69(12):8526–8538, 2024. DOI: 10.1109/TAC.2024.3409749

[196] A. Davydov, S. Jafarpour, A. V. Proskurnikov, and F. Bullo. Non-Euclidean monotone operator theory and applications. *Journal of Machine Learning Research*, 25(307):1–33, 2024a. DOI: 10.48550/arXiv.2303.11273. URL http://jmlr.org/papers/v25/23-0805.html

[195] W. Mei, J. M. Hendrickx, G. Chen, F. Bullo, and F. Dörfler. Convergence, consensus and dissensus in the weighted-median opinion dynamics. *IEEE Transactions on Automatic Control*, 69(10):6700–6714, 2024. DOI: 10.1109/TAC.2024.3376752

[194] A. Davydov and F. Bullo. Perspectives on contractivity in control, optimization and learning. *IEEE Control Systems Letters*, 8:2087–2098, 2024a. DOI: 10.1109/LCSYS.2024.3436127

[193] V. Centorrino, A. Davydov, A. Gokhale, G. Russo, and F. Bullo. On weakly contracting dynamics for convex optimization. *IEEE Control Systems Letters*, 8:1745–1750, 2024b. DOI: 10.1109/LCSYS.2024.3414348

[192] A. Davydov and F. Bullo. Exponential stability of parametric optimization-based controllers via Lur'e contractivity. *IEEE Control Systems Letters*, 8:1277–1282, 2024b. DOI: 10.1109/LCSYS.2024.3408110

[191] Z. Marvi, F. Bullo, and A. G. Alleyne. Control barrier proximal dynamics: A contraction theoretic approach for safety verification. *IEEE Control Systems Letters*, 8:880–885, 2024a. DOI: 10.1109/LCSYS.2024.3402188

[190] V. Centorrino, A. Gokhale, A. Davydov, G. Russo, and F. Bullo. Positive competitive networks for sparse reconstruction. *Neural Computation*, 36(6):1163–1197, 2024c. DOI: 10.1162/neco_a_01657

[189] G. De Pasquale, K. D. Smith, F. Bullo, and M. E. Valcher. Dual seminorms, ergodic coefficients, and semicontraction theory. *IEEE Transactions on Automatic Control*, 69(5):3040–3053, 2024. DOI: 10.1109/TAC.2023.3302788

[188] V. Centorrino, F. Bullo, and G. Russo. Modelling and contractivity of neural-synaptic networks with Hebbian learning. *Automatica*, 164:111636, 2024a. DOI: 10.1016/j.automatica.2024.111636

[187] O. Dalin, R. Ofir, E. Bar Shalom, A. Ovseevich, F. Bullo, and M. Margaliot. Verifying k-contraction without computing k-compounds. *IEEE Transactions on Automatic Control*, 69(3):1492–1506, 2024. DOI: 10.1109/TAC.2023.3326058

[186] A. Gokhale, A. Davydov, and F. Bullo. Contractivity of distributed optimization and Nash seeking dynamics. *IEEE Control Systems Letters*, 7:3896–3901, 2023. DOI: 10.1109/LCSYS.2023.3341987

[185] W. Liu, J. Sun, G. Wang, F. Bullo, and J. Chen. Data-driven self-triggered control via trajectory prediction. *IEEE Transactions on Automatic Control*, 68(11):6951–6958, 2023b. DOI: 10.1109/TAC.2023.3244116

[184] C. Ravazzi, F. Bullo, and F. Dabbene. Unveiling oligarchy in influence networks from partial information. *IEEE Transactions on Control of Network Systems*, 10(3):1279–1290, 2023. DOI: 10.1109/TCNS.2022.3225299

[183] S. Jafarpour, A. Davydov, and F. Bullo. Non-Euclidean contraction theory for monotone and positive systems. *IEEE Transactions on Automatic Control*, 68(9):5653–5660, 2023. DOI: 10.1109/TAC.2022.3224094

[182] W. Liu, J. Sun, G. Wang, F. Bullo, and J. Chen. Data-driven resilient model predictive control under denial-of-service. *IEEE Transactions on Automatic Control*, 68(8):4722–4737, 2023a. DOI: 10.1109/TAC.2022.3209399

[181] Y. Tian, L. Wang, and F. Bullo. How social influence affects the wisdom of crowds in influence networks. *SIAM Journal on Control and Optimization*, 61(4):2334–2357, 2023. DOI: 10.1137/22M1492751

[180] G. Diaz-García, F. Bullo, and J. R. Marden. Distributed Markov chain-based strategies for multi-agent robotic surveillance. *IEEE Control Systems Letters*, 7:2527–2532, 2023a. DOI: 10.1109/LCSYS.2023.3288492

[179] A. V. Proskurnikov, A. Davydov, and F. Bullo. The Yakubovich S-Lemma revisited: Stability and contractivity in non-Euclidean norms. *SIAM Journal on Control and Optimization*, 61(4):1955–1978, 2023. DOI: 10.1137/22M1512600

[178] K. D. Smith and F. Bullo. Convex optimization of the basic reproduction number. *IEEE Transactions on Automatic Control*, 68(7):4398–4404, 2023a. DOI: 10.1109/TAC.2022.3212012

[177] P. Cisneros-Velarde and F. Bullo. Distributed Wasserstein barycenters via displacement interpolation. *IEEE Transactions on Control of Network Systems*, 10(2):785–795, 2023. DOI: 10.1109/TCNS.2022.3210341

[176] M. Coraggio, S. Jafarpour, F. Bullo, and M. di Bernardo. Minimax flow over acyclic networks: Distributed algorithms and microgrid application. *IEEE Transactions on Control of Network Systems*, 10(2):937–946, 2023. DOI: 10.1109/TCNS.2022.3212638

[175] V. Centorrino, A. Gokhale, A. Davydov, G. Russo, and F. Bullo. Euclidean contractivity of neural networks with symmetric weights. *IEEE Control Systems Letters*, 7:1724–1729, 2023. DOI: 10.1109/LCSYS.2023.3278250

[174] R. Delabays and F. Bullo. Semicontraction and synchronization of Kuramoto-Sakaguchi oscillator networks. *IEEE Control Systems Letters*, 7:1566–1571, 2023. DOI: 10.1109/LCSYS.2023.3275169

[173] E. Y. Huang, D. Paccagnan, W. Mei, and F. Bullo. Assign and appraise: Achieving optimal performance in collaborative teams. *IEEE Transactions on Automatic Control*, 68(3):1614–1627, 2023. DOI: 10.1109/TAC.2022.3156879

[172] K. D. Smith and F. Bullo. Contractivity of the method of successive approximations for optimal control. *IEEE Control Systems Letters*, 7:919–924, 2023b. DOI: 10.1109/LCSYS.2022.3228723

[171] R. Yan, X. Duan, Z. Shi, Y. Zhong, and F. Bullo. Matching-based capture strategies for 3D heterogeneous multiplayer reach-avoid differential games. *Automatica*, 140:110207, 2022a. DOI: 10.1016/j.automatica.2022.110207

[170] P. Cisneros-Velarde, S. Jafarpour, and F. Bullo. Contraction theory for dynamical systems on Hilbert spaces. *IEEE Transactions on Automatic Control*, 67(12):6710–6715, 2022b. DOI: 10.1109/TAC.2021.3133270

[169] A. Davydov, S. Jafarpour, and F. Bullo. Non-Euclidean contraction theory for robust nonlinear stability. *IEEE Transactions on Automatic Control*, 67(12):6667–6681, 2022b. DOI: 10.1109/TAC.2022.3183966

[168] K. D. Smith, S. Jafarpour, A. Swami, and F. Bullo. Topology inference with multivariate cumulants: The Möbius inference algorithm. *IEEE/ACM Transactions on Networking*, 30(5):2102–2116, 2022b. DOI: 10.1109/TNET.2022.3164336

[167] R. Delabays, S. Jafarpour, and F. Bullo. Multistabilities and anomalies in oscillator models of lossy power grids. *Nature Communications*, 13:5238, 2022. DOI: 10.1038/s41467-022-32931-8

[166] W. Liu, J. Sun, G. Wang, F. Bullo, and J. Chen. Resilient control under quantization and denial-of-service: Co-designing a deadbeat controller and transmission protocol. *IEEE Transactions on Automatic Control*, 67(8): 3879–3891, 2022. DOI: 10.1109/TAC.2021.3107145

[165] P. Cisneros-Velarde, S. Jafarpour, and F. Bullo. Distributed and time-varying primal-dual dynamics via contraction analysis. *IEEE Transactions on Automatic Control*, 67(7):3560–3566, 2022a. DOI: 10.1109/TAC.2021.3103865

[164] P. Cisneros-Velarde and F. Bullo. Multi-group SIS epidemics with simplicial and higher-order interactions. *IEEE Transactions on Control of Network Systems*, 9(2):695–705, 2022a. DOI: 10.1109/TCNS.2021.3124269

[163] S. Jafarpour, V. Purba, S. V. Dhople, B. B. Johnson, and F. Bullo. Singular perturbation and small-signal stability for inverter networks. *IEEE Transactions on Control of Network Systems*, 9(2):979–992, 2022e. DOI: 10.1109/TCNS.2021.3084444

[162] W. Mei, F. Bullo, G. Chen, J. M. Hendrickx, and F. Dörfler. Rethinking the micro-foundation of opinion dynamics: Rich consequences of the weighted-median mechanism. *Physical Review Research*, 4(2):023213, 2022. DOI: 10.1103/physrevresearch.4.023213

[161] R. Ofir, F. Bullo, and M. Margaliot. Minimum effort decentralized control design for contracting network systems. *IEEE Control Systems Letters*, 6:2731–2736, 2022. DOI: 10.1109/LCSYS.2022.3176196

[160] O. Askarisichani, F. Bullo, N. E. Friedkin, and A. K. Singh. Predictive models for human-AI nexus in group decision-making. *Annals of the New York Academy of Sciences*, 1514(1):70–81, 2022. DOI: 10.1111/nyas.14783

[159] R. Yan, X. Duan, Z. Shi, Y. Zhong, J. R. Marden, and F. Bullo. Policy evaluation and seeking for multi-agent reinforcement learning via best response. *IEEE Transactions on Automatic Control*, 67(4):1898–1913, 2022b. DOI: 10.1109/TAC.2021.3085171

[158] S. Jafarpour, P. Cisneros-Velarde, and F. Bullo. Weak and semi-contraction for network systems and diffusively-coupled oscillators. *IEEE Transactions on Automatic Control*, 67(3):1285–1300, 2022b. DOI: 10.1109/TAC.2021.3073096

[157] S. Jafarpour, E. Y. Huang, K. D. Smith, and F. Bullo. Flow and elastic networks on the n-torus: Geometry, analysis and computation. *SIAM Review*, 64(1):59–104, 2022d. DOI: 10.1137/18M1242056

[156] Y. Tian, P. Jia, A. Mirtabatabaei, L. Wang, N. E. Friedkin, and F. Bullo. Social power evolution in influence networks with stubborn individuals. *IEEE Transactions on Automatic Control*, 67(2):574–588, 2022. DOI: 10.1109/TAC.2021.3052485

[155] K. D. Smith, S. Jafarpour, and F. Bullo. Transient stability of droop-controlled inverter networks with operating constraints. *IEEE Transactions on Automatic Control*, 67(2):633–645, 2022a. DOI: 10.1109/TAC.2021.3053552

[154] P. Cisneros-Velarde and F. Bullo. A network formation game for the emergence of hierarchies. *PLoS One*, 16: 1–26, 08 2021. DOI: 10.1371/journal.pone.0255990

[153] X. Duan, S. Jafarpour, and F. Bullo. Graph-theoretic stability conditions for Metzler matrices and monotone systems. *SIAM Journal on Control and Optimization*, 59(5):3447–3471, 2021a. DOI: 10.1137/20M131802X

[152] X. Duan, D. Paccagnan, and F. Bullo. Stochastic strategies for robotic surveillance as Stackelberg games. *IEEE Transactions on Control of Network Systems*, 8(2):769–780, 2021b. DOI: 10.1109/TCNS.2021.3058932

[151] P. Cisneros-Velarde, K. S. Chan, and F. Bullo. Polarization and fluctuations in signed social networks. *IEEE Transactions on Automatic Control*, 66(8):3789–3793, 2021. DOI: 10.1109/TAC.2020.3024967

[150] P. Cisneros-Velarde, N. E. Friedkin, A. V. Proskurnikov, and F. Bullo. Structural balance via gradient flows over signed graphs. *IEEE Transactions on Automatic Control*, 66(7):3169–3183, 2020. DOI: 10.1109/TAC.2020.3018435

[149] X. Duan and F. Bullo. Markov chain-based stochastic strategies for robotic surveillance. *Annual Review of Control, Robotics, and Autonomous Systems*, 4:243–264, 2021. DOI: 10.1146/annurev-control-071520-120123

[148] N. E. Friedkin, A. V. Proskurnikov, and F. Bullo. Group dynamics on multidimensional attitudes. *Social Networks*, 65:157–167, 2021. DOI: 10.1016/j.socnet.2020.12.009

[147] O. Askarisichani, A. Singh, F. Bullo, and N. E. Friedkin. The 1995-2018 global evolution of the network of amicable and hostile relations among nation-states. *Communications Physics*, 3(1):215, 2020b. DOI: 10.1038/s42005-020-00478-z

[146] X. Duan, M. George, R. Patel, and F. Bullo. Robotic surveillance based on the meeting time of random walks. *IEEE Transactions on Robotics*, 36(4):1356–1362, 2020b. DOI: 10.1109/TRO.2020.2990362

[145] P. Jia, N. E. Friedkin, and F. Bullo. Opinion dynamics and social power evolution: A single-timescale model. *IEEE Transactions on Control of Network Systems*, 7(2):899–911, 2020. DOI: 10.1109/TCNS.2019.2951672

[144] F. Bullo, F. Fagnani, and B. Franci. Finite-time influence systems and the wisdom of crowd effect. *SIAM Journal on Control and Optimization*, 58(2):636–659, 2020. DOI: 10.1137/18M1232267

[143] V. Purba, B. B. Johnson, S. Jafarpour, F. Bullo, and S. V. Dhople. Dynamic aggregation of grid-tied three-phase inverters. *IEEE Transactions on Power Systems*, 35(2):1520–1530, 2020. DOI: 10.1109/TPWRS.2019.2942292

[142] G. Chen, W. Su, W. Mei, and F. Bullo. Convergence properties of the heterogeneous Deffuant-Weisbuch model. *Automatica*, 114:108825, 2020a. DOI: 10.1016/j.automatica.2020.108825

[141] W. Mei, P. Cisneros-Velarde, G. Chen, N. E. Friedkin, and F. Bullo. Dynamic social balance and convergent appraisals via homophily and influence mechanisms. *Automatica*, 110:108580, 2019. DOI: 10.1016/j.automatica.2019.108580

[140] P. Cisneros-Velarde and F. Bullo. Signed network formation games and clustering balance. *Dynamic Games and Applications*, 10:783–797, 2020. DOI: 10.1007/s13235-019-00346-8

[139] X. Duan, M. George, and F. Bullo. Markov chains with maximum return time entropy for robotic surveillance. *IEEE Transactions on Automatic Control*, 65(1):72–86, 2020a. DOI: 10.1109/TAC.2019.2906473

[138] S. Jafarpour, E. Y. Huang, and F. Bullo. Synchronization of Kuramoto oscillators: Inverse Taylor expansions. *SIAM Journal on Control and Optimization*, 57(5):3388–3412, 2019. DOI: 10.1137/18M1216262

[137] S. Mohagheghi, P. Agharkar, F. Bullo, and N. E. Friedkin. Multigroup connectivity structures and their implications. *Network Science*, pages 1–17, 2019. DOI: 10.1017/nws.2019.22

[136] N. E. Friedkin, A. V. Proskurnikov, and F. Bullo. Positive contagion and the macrostructures of generalized balance. *Network Science*, 7(4):445–458, 2019b. DOI: 10.1017/nws.2019.19

[135] S. Jafarpour and F. Bullo. Synchronization of Kuramoto oscillators via cutset projections. *IEEE Transactions on Automatic Control*, 64(7):2830–2844, 2019. DOI: 10.1109/TAC.2018.2876786

[134] O. Askarisichani, J. Ng Lane, F. Bullo, N. E. Friedkin, A. K. Singh, and B. Uzzi. Structural balance emerges and explains performance in risky decision-making. *Nature Communications*, 10(2648), 2019. DOI: 10.1038/s41467-019-10548-8

[133] V. Purba, B. Johnson, M. Rodriguez, S. Jafarpour, F. Bullo, and S. V. Dhople. Reduced-order aggregate model for parallel-connected single-phase inverters. *IEEE Transactions on Energy Conversion*, 34(2):824–837, 2019. DOI: 10.1109/TEC.2018.2881710

[132] G. Chen, X. Duan, W. Mei, and F. Bullo. Linear stochastic approximation algorithms and group consensus over random signed networks. *IEEE Transactions on Automatic Control*, 64(5):1874–1889, 2019b. DOI: 10.1109/TAC.2018.2867257

[131] M. George, S. Jafarpour, and F. Bullo. Markov chains with maximum entropy for robotic surveillance. *IEEE Transactions on Automatic Control*, 64(4):1566–1580, 2019. DOI: 10.1109/TAC.2018.2844120

[130] J. R. Peters, A. Surana, G. Taylor, T. Turpin, and F. Bullo. UAV surveillance under visibility and dwell-time constraints. *ASME Journal of Dynamic Systems, Measurement, and Control*, 141(6):064501–6, 2019. DOI: 10.1115/1.4042669

[129] N. E. Friedkin, W. Mei, A. V. Proskurnikov, and F. Bullo. Mathematical structures in group decision-making on resource allocation distributions. *Scientific Reports*, 9(1):1377, 2019a. DOI: 10.1038/s41598-018-37847-2

[128] G. Chen, X. Duan, N. E. Friedkin, and F. Bullo. Social power dynamics over switching and stochastic influence networks. *IEEE Transactions on Automatic Control*, 64(2):582–597, 2019a. DOI: 10.1109/TAC.2018.2822182

[127] J. R. Peters, A. Surana, and F. Bullo. Robust scheduling and routing for collaborative human-UAV surveillance missions. *AIAA Journal of Aerospace Information Systems*, 15(10):585–603, 2018. DOI: 10.2514/1.I010560

[126] M. Todescato, J. W. Simpson-Porco, F. Dörfler, R. Carli, and F. Bullo. Online distributed voltage stress minimization by optimal feedback reactive power control. *IEEE Transactions on Control of Network Systems*, 5 (3):1467–1478, 2018. DOI: 10.1109/TCNS.2017.2722818

[125] W. Mei, N. E. Friedkin, K. Lewis, and F. Bullo. Dynamic models of appraisal networks explaining collective learning. *IEEE Transactions on Automatic Control*, 63(9):2898–2912, 2018. DOI: 10.1109/TAC.2017.2775963

[124] F. Dörfler, J. W. Simpson-Porco, and F. Bullo. Electrical networks and algebraic graph theory: Models, properties, and applications. *Proceedings of the IEEE*, 106(5):977–1005, 2018. DOI: 10.1109/JPROC.2018.2821924

[123] W. Mei, S. Mohagheghi, S. Zampieri, and F. Bullo. On the dynamics of deterministic epidemic propagation over networks. *Annual Reviews in Control*, 44:116–128, 2017. DOI: 10.1016/j.arcontrol.2017.09.002

[122] V. Amelkin, F. Bullo, and A. K. Singh. Polar opinion dynamics in social networks. *IEEE Transactions on Automatic Control*, 62(11):5650–5665, 2017. DOI: 10.1109/TAC.2017.2694341

[121] N. E. Friedkin and F. Bullo. How truth wins in opinion dynamics along issue sequences. *Proceedings of the National Academy of Sciences*, 114(43):11380–11385, 2017. DOI: 10.1073/pnas.1710603114

[120] M. George, F. Bullo, and O. Campàs. Connecting individual to collective cell migration. *Scientific Reports*, 7 (9720), 2017. DOI: 10.1038/s41598-017-10069-8

[119] W. Mei and F. Bullo. Competitive propagation: Models, asymptotic behavior and quality-seeding games. *IEEE Transactions on Network Science and Engineering*, 4(2):83–99, 2017. DOI: 10.1109/TNSE.2017.2651070

[118] J. R. Peters, S. Wang, A. Surana, and F. Bullo. Cloud-supported coverage control for persistent surveillance missions. *ASME Journal of Dynamic Systems, Measurement, and Control*, 139(8):081011–081011–12, 2017b. DOI: 10.1115/1.4035874

[117] P. Jia, N. E. Friedkin, and F. Bullo. Opinion dynamics and social power evolution over reducible influence networks. *SIAM Journal on Control and Optimization*, 55(2):1280–1301, 2017. DOI: 10.1137/16M1065677

[116] J. W. Simpson-Porco, F. Dörfler, and F. Bullo. Voltage stabilization in microgrids via quadratic droop control. *IEEE Transactions on Automatic Control*, 62(7):1239–253, 2017. DOI: 10.1109/TAC.2016.2585094

[115] P. Jia, N. E. Friedkin, and F. Bullo. The coevolution of appraisal and influence networks leads to structural balance. *IEEE Transactions on Network Science and Engineering*, 3(4):286–298, 2016. DOI: 10.1109/TNSE.2016.2600058

[114] F. Dörfler, J. W. Simpson-Porco, and F. Bullo. Breaking the hierarchy: Distributed control & economic optimality in microgrids. *IEEE Transactions on Control of Network Systems*, 3(3):241–253, 2016. DOI: 10.1109/TCNS.2015.2459391

[113] R. Patel, A. Carron, and F. Bullo. The hitting time of multiple random walks. *SIAM Journal on Matrix Analysis and Applications*, 37(3):933–954, 2016a. DOI: 10.1137/15M1010737

[112] W. Mei and F. Bullo. Sequential decision aggregation with social pressure. *Mathematics of Control, Signals and Systems*, 28(3):1–27, 2016. DOI: 10.1007/s00498-016-0174-5

[111] D. Kannapan and F. Bullo. Synchronization in pulse-coupled oscillators with delayed excitatory/inhibitory coupling. *SIAM Journal on Control and Optimization*, 54(4):1872–1894, 2016. DOI: 10.1137/15M1040517

[110] N. E. Friedkin, P. Jia, and F. Bullo. A theory of the evolution of social power: Natural trajectories of interpersonal influence systems along issue sequences. *Sociological Science*, 3:444–472, 2016. DOI: 10.15195/v3.a20

[109] J. W. Simpson-Porco and F. Bullo. Distributed monitoring of voltage collapse sensitivity indices. *IEEE Transactions on Smart Grid*, 7(4):1979–1988, 2016. DOI: 10.1109/TSG.2016.2533319

[108] R. Patel, P. Frasca, J. W. Durham, R. Carli, and F. Bullo. Dynamic partitioning and coverage control with asynchronous one-to-base-station communication. *IEEE Transactions on Control of Network Systems*, 3(1):24–33, 2016b. DOI: 10.1109/TCNS.2015.2428304

[107] P. Agharkar and F. Bullo. Quickest detection over robotic roadmaps. *IEEE Transactions on Robotics*, 32(1): 252–259, 2016. DOI: 10.1109/TRO.2015.2506165

[106] J. W. Simpson-Porco, F. Dörfler, and F. Bullo. Voltage collapse in complex power grids. *Nature Communications*, 7(10790), 2016. DOI: 10.1038/ncomms10790

[105] J. R. Peters, D. Borra, B. E. Paden, and F. Bullo. Sensor network localization on the group of three-dimensional displacements. *SIAM Journal on Control and Optimization*, 53(6):3534–3561, 2015a. DOI: 10.1137/140957743

[104] R. Patel, P. Agharkar, and F. Bullo. Robotic surveillance and Markov chains with minimal weighted Kemeny constant. *IEEE Transactions on Automatic Control*, 60(12):3156–3167, 2015. DOI: 10.1109/TAC.2015.2426317

[103] J. R. Peters, V. Srivastava, G. Taylor, A. Surana, M. P. Eckstein, and F. Bullo. Mixed human-robot team surveillance: Integrating cognitive modeling with engineering design. *IEEE Control Systems*, 35(6):57–80, 2015b. DOI: 10.1109/MCS.2015.2471056

[102] J. W. Simpson-Porco, Q. Shafiee, F. Dörfler, J. M. Vasquez, J. M. Guerrero, and F. Bullo. Secondary frequency and voltage control of islanded microgrids via distributed averaging. *IEEE Transactions on Industrial Electronics*, 62(11):7025–7038, 2015c. DOI: 10.1109/TIE.2015.2436879

[101] P. Agharkar, S. D. Bopardikar, and F. Bullo. Vehicle routing algorithms for radially escaping targets. *SIAM Journal on Control and Optimization*, 53(5):2934–2954, 2015. DOI: 10.1137/141000087

[100] P. Jia, A. MirTabatabaei, N. E. Friedkin, and F. Bullo. Opinion dynamics and the evolution of social power in influence networks. *SIAM Review*, 57(3):367–397, 2015. DOI: 10.1137/130913250

[99] J. W. Simpson-Porco, F. Dörfler, and F. Bullo. On resistive networks of constant power devices. *IEEE Transactions on Circuits and Systems II: Express Briefs*, 62(8):811–815, 2015b. DOI: 10.1109/TCSII.2015.2433537

[98] D. Borra, F. Pasqualetti, and F. Bullo. Continuous graph partitioning for camera network surveillance. *Automatica*, 52:227–231, 2015. DOI: 10.1016/j.automatica.2014.11.017

[97] F. Pasqualetti, F. Dörfler, and F. Bullo. Control-theoretic methods for cyber-physical security: Geometric principles for optimal cross-layer resilient control systems. *IEEE Control Systems*, 35(1):110–127, 2015b. DOI: 10.1109/MCS.2014.2364725

[96] S. D. Bopardikar, S. L. Smith, and F. Bullo. On dynamic vehicle routing with time constraints. *IEEE Transactions on Robotics*, 30(6):1524–1532, 2014. DOI: 10.1109/TRO.2014.2344451

[95] F. Dörfler, M. Jovanović, M. Chertkov, and F. Bullo. Sparsity-promoting optimal wide-area control of power networks. *IEEE Transactions on Power Systems*, 29(5):2281–2291, 2014a. DOI: 10.1109/TPWRS.2014.2304465

[94] F. Pasqualetti, F. Zanella, J. R. Peters, M. Spindler, R. Carli, and F. Bullo. Camera network coordination for intruder detection. *IEEE Transactions on Control Systems Technology*, 22(5):1669–1683, 2014d. DOI: 10.1109/TCST.2013.2290708

[93] F. Dörfler and F. Bullo. Synchronization in complex networks of phase oscillators: A survey. *Automatica*, 50(6): 1539–1564, 2014. DOI: 10.1016/j.automatica.2014.04.012 **(Invited Survey)**

[92] R. Patel, P. Frasca, and F. Bullo. Centroidal area-constrained partitioning for robotic networks. *ASME Journal of Dynamic Systems, Measurement, and Control*, 136(3):031024–031024–8, 2014. DOI: 10.1115/1.4026344

[91] F. Pasqualetti, S. Zampieri, and F. Bullo. Controllability metrics, limitations and algorithms for complex networks. *IEEE Transactions on Control of Network Systems*, 1(1):40–52, 2014b. DOI: 10.1109/TCNS.2014.2310254 **(Inaugural Issue. Outstanding Paper Award, IEEE Transactions on Control of Network Systems, 2016)**

[90] J. W. Simpson-Porco and F. Bullo. Contraction theory on Riemannian manifolds. *Systems & Control Letters*, 65: 74–80, 2014. DOI: 10.1016/j.sysconle.2013.12.016

[89] S. Susca, P. Agharkar, S. Martínez, and F. Bullo. Synchronization of beads on a ring by feedback control. *SIAM Journal on Control and Optimization*, 52(2):914–938, 2014. DOI: 10.1137/120903208

[88] V. Srivastava and F. Bullo. Knapsack problems with sigmoid utility: Approximation algorithms via hybrid optimization. *European Journal of Operational Research*, 236(2):488–498, 2014. DOI: 10.1016/j.ejor.2013.12.035

[87] A. MirTabatabaei, P. Jia, and F. Bullo. Eulerian opinion dynamics with bounded confidence and exogenous inputs. *SIAM Journal on Applied Dynamical Systems*, 13(1):425–446, 2014a. DOI: 10.1137/130934040

[86] L. Carlone, V. Srivastava, F. Bullo, and G. C. Calafiore. Distributed random convex programming via constraints consensus. *SIAM Journal on Control and Optimization*, 52(1):629–662, 2014. DOI: 10.1137/120885796

[85] F. Pasqualetti, D. Borra, and F. Bullo. Consensus networks over finite fields. *Automatica*, 50(2):349–358, 2014a. DOI: 10.1016/j.automatica.2013.11.011

[84] V. Srivastava, R. Carli, C. Langbort, and F. Bullo. Attention allocation for decision making queues. *Automatica*, 50(2):378–388, 2014. DOI: 10.1016/j.automatica.2013.11.028

[83] F. Pasqualetti, F. Dörfler, and F. Bullo. Attack detection and identification in cyber-physical systems. *IEEE Transactions on Automatic Control*, 58(11):2715–2729, 2013b. DOI: 10.1109/TAC.2013.2266831

[82] M. Franceschelli, D. Rosa, C. Seatzu, and F. Bullo. Gossip algorithms for heterogeneous multi-vehicle routing problems. *Nonlinear Analysis: Hybrid Systems*, 10:156–174, 2013. DOI: 10.1016/j.nahs.2013.03.001

[81] V. Srivastava, F. Pasqualetti, and F. Bullo. Stochastic surveillance strategies for spatial quickest detection. *International Journal of Robotics Research*, 32(12):1438–1458, 2013. DOI: 10.1177/0278364913490322

[80] J. W. Simpson-Porco, F. Dörfler, and F. Bullo. Synchronization and power sharing for droop-controlled inverters in islanded microgrids. *Automatica*, 49(9):2603–2611, 2013a. DOI: 10.1016/j.automatica.2013.05.018 **(IFAC Automatica Best Paper Award, 2014)**

[79] F. Dörfler, F. Pasqualetti, and F. Bullo. Continuous-time distributed observers with discrete communication. *IEEE Journal of Selected Topics in Signal Processing*, 7(2):296–304, 2013c. DOI: 10.1109/JSTSP.2013.2245300

[78] F. Dörfler, M. Chertkov, and F. Bullo. Synchronization in complex oscillator networks and smart grids. *Proceedings of the National Academy of Sciences*, 110(6):2005–2010, 2013a. DOI: 10.1073/pnas.1212134110

[77] F. Dörfler and F. Bullo. Kron reduction of graphs with applications to electrical networks. *IEEE Transactions on Circuits and Systems I: Regular Papers*, 60(1):150–163, 2013a. DOI: 10.1109/TCSI.2012.2215780 **(Guillemin-Cauer Best Paper Award, IEEE Transactions on Circuits & Systems, 2016)**

[76] G. Piovan, I. Shames, B. Fidan, F. Bullo, and B. D. O. Anderson. On frame and orientation localization for relative sensing networks. *Automatica*, 49(1):206–213, 2013. DOI: 10.1016/j.automatica.2012.09.014

[75] S. H. Dandach and F. Bullo. Distributed sequential algorithms for regional source localization. *Automatica*, 49 (3):178–185, 2013. DOI: 10.1016/j.automatica.2012.09.006

[74] M. Bürger, G. Notarstefano, F. Bullo, and F. Allgöwer. A distributed simplex algorithm for degenerate linear programs and multi-agent assignment. *Automatica*, 48(9):2298–2304, 2012. DOI: 10.1016/j.automatica.2012.06.040

[73] F. Pasqualetti, J. W. Durham, and F. Bullo. Cooperative patrolling via weighted tours: Performance analysis and distributed algorithms. *IEEE Transactions on Robotics*, 28(5):1181–1188, 2012d. DOI: 10.1109/TRO.2012.2201293

[72] A. MirTabatabaei and F. Bullo. Opinion dynamics in heterogeneous networks: Convergence conjectures and theorems. *SIAM Journal on Control and Optimization*, 50(5):2763–2785, 2012. DOI: 10.1137/11082751X

[71] F. Dörfler and F. Bullo. Synchronization and transient stability in power networks and non-uniform Kuramoto oscillators. *SIAM Journal on Control and Optimization*, 50(3):1616–1642, 2012a. DOI: 10.1137/110851584

[70] G. Piovan and F. Bullo. On coordinate-free rotation decomposition: Euler angles about arbitrary axes. *IEEE Transactions on Robotics*, 28(3):728–733, 2012. DOI: 10.1109/TRO.2012.2184951

[69] F. Pasqualetti, A. Franchi, and F. Bullo. On cooperative patrolling: Optimal trajectories, complexity analysis and approximation algorithms. *IEEE Transactions on Robotics*, 28(3):592–606, 2012e. DOI: 10.1109/TRO.2011.2179580

[68] J. W. Durham, R. Carli, P. Frasca, and F. Bullo. Discrete partitioning and coverage control for gossiping robots. *IEEE Transactions on Robotics*, 28(2):364–378, 2012a. DOI: 10.1109/TRO.2011.2170753

[67] F. Pasqualetti, R. Carli, and F. Bullo. Distributed estimation via iterative projections with application to power network monitoring. *Automatica*, 48(5):747–758, 2012b. DOI: 10.1016/j.automatica.2012.02.025

[66] S. H. Dandach, R. Carli, and F. Bullo. Accuracy and decision time for sequential decision aggregation. *Proceedings of the IEEE*, 100(3):687–712, 2012. DOI: 10.1109/JPROC.2011.2180049

[65] F. Bullo, R. Carli, and P. Frasca. Gossip coverage control for robotic networks: Dynamical systems on the space of partitions. *SIAM Journal on Control and Optimization*, 50(1):419–447, 2012a. DOI: 10.1137/100806370 **(SIAG/CST Best SICON Paper Prize, 2013)**

[64] F. Pasqualetti, A. Bicchi, and F. Bullo. Consensus computation in unreliable networks: A system theoretic approach. *IEEE Transactions on Automatic Control*, 57(1):90–104, 2012a. DOI: 10.1109/TAC.2011.2158130

[63] J. W. Durham, A. Franchi, and F. Bullo. Distributed pursuit-evasion without global localization via local frontiers. *Autonomous Robots*, 32(1):81–95, 2012b. DOI: 10.1007/s10514-011-9260-1

[62] V. Srivastava, J. Moehlis, and F. Bullo. On bifurcations in nonlinear consensus networks. *Journal of Nonlinear Science*, 21(6):875–895, 2011b. DOI: 10.1007/s00332-011-9103-4

[61] G. Notarstefano and F. Bullo. Distributed abstract optimization via constraints consensus: Theory and applications. *IEEE Transactions on Automatic Control*, 56(10):2247–2261, 2011. DOI: 10.1109/TAC.2011.2164020

[60] F. Dörfler and F. Bullo. On the critical coupling for Kuramoto oscillators. *SIAM Journal on Applied Dynamical Systems*, 10(3):1070–1099, 2011b. DOI: 10.1137/10081530X

[59] F. Bullo, E. Frazzoli, M. Pavone, K. Savla, and S. L. Smith. Dynamic vehicle routing for robotic systems. *Proceedings of the IEEE*, 99(9):1482–1504, 2011. DOI: 10.1109/JPROC.2011.2158181

[58] S. D. Bopardikar, S. L. Smith, and F. Bullo. On vehicle placement to intercept moving targets. *Automatica*, 47 (9):2067–2074, 2011. DOI: 10.1016/j.automatica.2011.06.010

[57] M. Pavone, A. Arsie, E. Frazzoli, and F. Bullo. Distributed algorithms for environment partitioning in mobile robotic networks. *IEEE Transactions on Automatic Control*, 56(8):1834–1848, 2011a. DOI: 10.1109/TAC.2011.2112410

[56] K. J. Obermeyer, A. Ganguli, and F. Bullo. Multi-agent deployment for visibility coverage in polygonal environments with holes. *International Journal on Robust and Nonlinear Control*, 21(12):1467–1492, 2011b. DOI: 10.1002/rnc.1700

[55] M. Pavone, E. Frazzoli, and F. Bullo. Adaptive and distributed algorithms for vehicle routing in a stochastic and dynamic environment. *IEEE Transactions on Automatic Control*, 56(6):1259–1274, 2011b. DOI: 10.1109/TAC.2010.2092850

[54] V. Srivastava, K. Plarre, and F. Bullo. Randomized sensor selection in sequential hypothesis testing. *IEEE Transactions on Signal Processing*, 59(5):2342–2354, 2011c. DOI: 10.1109/TSP.2011.2106777

[53] F. Morbidi, F. Bullo, and D. Prattichizzo. Visibility maintenance via controlled invariance for leader-follower vehicle formations. *Automatica*, 47(5):1060–1067, 2011. DOI: 10.1016/j.automatica.2011.01.065

[52] K. J. Obermeyer, A. Ganguli, and F. Bullo. A complete algorithm for searchlight scheduling. *International Journal of Computational Geometry & Applications*, 21(1):101–130, 2011a. DOI: 10.1142/S0218195911003573

[51] S. D. Bopardikar, S. L. Smith, F. Bullo, and J. P. Hespanha. Dynamic vehicle routing for translating demands: Stability analysis and receding-horizon policies. *IEEE Transactions on Automatic Control*, 55(11):2554–2569, 2010b. DOI: 10.1109/TAC.2010.2049278

[50] G. Orosz, J. Moehlis, and F. Bullo. Robotic reactions: Delay-induced patterns in autonomous vehicle systems. *Physical Review E*, 81(2):025204(1–4), 2010. DOI: 10.1103/PhysRevE.81.025204

[49] S. L. Smith, M. Pavone, F. Bullo, and E. Frazzoli. Dynamic vehicle routing with priority classes of stochastic demands. *SIAM Journal on Control and Optimization*, 48(5):3224–3245, 2010. DOI: 10.1137/090749347

[48] R. Carli, F. Bullo, and S. Zampieri. Quantized average consensus via dynamic coding/decoding schemes. *International Journal on Robust and Nonlinear Control*, 20(2):156–175, 2010. DOI: 10.1002/rnc.1463

[47] S. Martínez, J. Cortés, and F. Bullo. A catalog of inverse-kinematics planners for underactuated systems on matrix groups. *Journal of Geometric Mechanics*, 1(4):445–460, 2009. DOI: 10.3934/jgm.2009.1.445

[46] S. L. Smith and F. Bullo. The dynamic team forming problem: Throughput and delay for unbiased policies. *Systems & Control Letters*, 58(10-11):709–715, 2009b. DOI: 10.1016/j.sysconle.2009.07.001

[45] S. L. Smith and F. Bullo. Monotonic target assignment for robotic networks. *IEEE Transactions on Automatic Control*, 54(9):2042–2057, 2009a. DOI: 10.1109/TAC.2009.2026926

[44] J. J. Enright, K. Savla, E. Frazzoli, and F. Bullo. Stochastic and dynamic routing problems for multiple UAVs. *AIAA Journal of Guidance, Control, and Dynamics*, 34(4):1152–1166, 2009. DOI: 10.2514/1.41616

[43] K. Savla, F. Bullo, and E. Frazzoli. Traveling Salesperson Problems for a double integrator. *IEEE Transactions on Automatic Control*, 54(4):788–793, 2009a. DOI: 10.1109/TAC.2008.2007856

[42] A. Ganguli, J. Cortés, and F. Bullo. Multirobot rendezvous with visibility sensors in nonconvex environments. *IEEE Transactions on Robotics*, 25(2):340–352, 2009. DOI: 10.1109/TRO.2009.2013493

[41] S. D. Bopardikar, F. Bullo, and J. P. Hespanha. A cooperative Homicidal Chauffeur game. *Automatica*, 45(7): 1771–1777, 2009a. DOI: 10.1016/j.automatica.2009.03.014

[40] R. Carli and F. Bullo. Quantized coordination algorithms for rendezvous and deployment. *SIAM Journal on Control and Optimization*, 48(3):1251–1274, 2009. DOI: 10.1137/070709906

[39] K. Plarre and F. Bullo. On Kalman filtering for detectable systems with intermittent observations. *IEEE Transactions on Automatic Control*, 54(2):386–390, 2009. DOI: 10.1109/TAC.2008.2008347

[38] J. Cortés and F. Bullo. Nonsmooth coordination and geometric optimization via distributed dynamical systems. *SIAM Review*, 51(1):163–189, 2009. DOI: 10.1137/080737551

[37] K. Savla, G. Notarstefano, and F. Bullo. Maintaining limited-range connectivity among second-order agents. *SIAM Journal on Control and Optimization*, 48(1):187–205, 2009b. DOI: 10.1137/060674971

[36] S. Susca, F. Bullo, and S. Martínez. Gradient algorithms for polygonal approximation of convex contours. *Automatica*, 45(2):510–516, 2009. DOI: 10.1016/j.automatica.2008.08.020

[35] S. D. Bopardikar, F. Bullo, and J. P. Hespanha. On discrete-time pursuit-evasion games with sensing limitations. *IEEE Transactions on Robotics*, 24(6):1429–1439, 2008a. DOI: 10.1109/TRO.2008.2006721

[34] N. Nordkvist and F. Bullo. Control algorithms along relative equilibria of underactuated Lagrangian systems on Lie groups. *IEEE Transactions on Automatic Control*, 53(11):2651–2657, 2008. DOI: 10.1109/TAC.2008.2007143

[33] K. Savla, E. Frazzoli, and F. Bullo. Traveling Salesperson Problems for the Dubins vehicle. *IEEE Transactions on Automatic Control*, 53(6):1378–1391, 2008. DOI: 10.1109/TAC.2008.925814

[32] S. Susca, S. Martínez, and F. Bullo. Monitoring environmental boundaries with a robotic sensor network. *IEEE Transactions on Control Systems Technology*, 16(2):288–296, 2008. DOI: 10.1109/TCST.2007.903395

[31] C. Gao, J. Cortés, and F. Bullo. Notes on averaging over acyclic digraphs and discrete coverage control. *Automatica*, 44(8):2120–2127, 2008. DOI: 10.1016/j.automatica.2007.12.017

[30] S. Martínez, F. Bullo, J. Cortés, and E. Frazzoli. On synchronous robotic networks – Part II: Time complexity of rendezvous and deployment algorithms. *IEEE Transactions on Automatic Control*, 52(12):2214–2226, 2007b. DOI: 10.1109/TAC.2007.908304

[29] S. Martínez, F. Bullo, J. Cortés, and E. Frazzoli. On synchronous robotic networks – Part I: Models, tasks and complexity. *IEEE Transactions on Automatic Control*, 52(12):2199–2213, 2007a. DOI: 10.1109/TAC.2007.908301

[28] F. Bullo and A. D. Lewis. Reduction, linearization, and stability of relative equilibria for mechanical systems on Riemannian manifolds. *Acta Applicandae Mathematicae*, 99(1):53–95, 2007. DOI: 10.1007/s10440-007-9155-5

[27] S. Martínez, J. Cortés, and F. Bullo. Motion coordination with distributed information. *IEEE Control Systems*, 27(4):75–88, 2007c. DOI: 10.1109/MCS.2007.384124 **(Outstanding Paper Award, IEEE Control Systems Magazine, 2008)**

[26] J. Cortés, S. Martínez, and F. Bullo. Robust rendezvous for mobile autonomous agents via proximity graphs in arbitrary dimensions. *IEEE Transactions on Automatic Control*, 51(8):1289–1298, 2006. DOI: 10.1109/TAC.2006.878713

[25] A. Ganguli, J. Cortés, and F. Bullo. Maximizing visibility in nonconvex polygons: Nonsmooth analysis and gradient algorithm design. *SIAM Journal on Control and Optimization*, 45(5):1657–1679, 2006a. DOI: 10.1137/050621918

[24] S. Martínez and F. Bullo. Optimal sensor placement and motion coordination for target tracking. *Automatica*, 42(4):661–668, 2006. DOI: 10.1016/j.automatica.2005.12.018

[23] F. Bullo and D. Liberzon. Quantized control via locational optimization. *IEEE Transactions on Automatic Control*, 51(1):2–13, 2006. DOI: 10.1109/TAC.2005.861688

[22] J. Cortés and F. Bullo. Coordination and geometric optimization via distributed dynamical systems. *SIAM Journal on Control and Optimization*, 44(5):1543–1574, 2005. DOI: 10.1137/S0363012903428652 **(Selected for inclusion in SIGEST section of SIAM Review, Mar 2009)**

[21] F. Bullo and A. D. Lewis. Low-order controllability and kinematic reductions for affine connection control systems. *SIAM Journal on Control and Optimization*, 44(3):885–908, 2005. DOI: 10.1137/S0363012903421182

[20] J. Cortés, S. Martínez, and F. Bullo. Spatially-distributed coverage optimization and control with limited-range interactions. *ESAIM: Control, Optimisation & Calculus of Variations*, 11:691–719, 2005a. DOI: 10.1051/cocv:2005024

[19] M. W. Spong and F. Bullo. Controlled symmetries and passive walking. *IEEE Transactions on Automatic Control*, 50(7):1025–1031, 2005. DOI: 10.1109/TAC.2005.851449

[18] F. Bullo. Trajectory design for mechanical systems: from geometry to algorithms. *European Journal of Control*, 10(5):397–410, 2004. DOI: 10.3166/ejc.10.397-410

[17] W. T. Cerven, F. Bullo, and V. L. Coverstone. Vehicle motion planning with time-varying constraints. *AIAA Journal of Guidance, Control, and Dynamics*, 27(3):506–508, 2004. DOI: 10.2514/1.4306

[16] J. Cortés, S. Martínez, T. Karatas, and F. Bullo. Coverage control for mobile sensing networks. *IEEE Transactions on Robotics and Automation*, 20(2):243–255, 2004b. DOI: 10.1109/TRA.2004.824698

[15] S. Martínez, J. Cortés, and F. Bullo. Analysis and design of oscillatory control systems. *IEEE Transactions on Automatic Control*, 48(7):1164–1177, 2003a. DOI: 10.1109/TAC.2003.814104

[14] F. Bullo and A. D. Lewis. Kinematic controllability and motion planning for the snakeboard. *IEEE Transactions on Robotics and Automation*, 19(3):494–498, 2003. DOI: 10.1109/TRA.2003.810236

[13] W. T. Cerven and F. Bullo. Constructive controllability algorithms for motion planning and optimization. *IEEE Transactions on Automatic Control*, 48(4):575–589, 2003. DOI: 10.1109/TAC.2003.809798

[12] J. W. Melody, T. Başar, and F. Bullo. On nonlinear controllability of homogeneous systems linear in the controls. *IEEE Transactions on Automatic Control*, 48(1):139–143, 2003. DOI: 10.1109/TAC.2002.806667

[11] J. Cortés, S. Martínez, and F. Bullo. On nonlinear controllability and series expansions for Lagrangian systems with dissipative forces. *IEEE Transactions on Automatic Control*, 47(8):1396–1401, 2002a. DOI: 10.1109/TAC.2002.801187

[10] F. Bullo and M. Žefran. On mechanical control systems with nonholonomic constraints and symmetries. *Systems & Control Letters*, 45(2):133–143, 2002b. DOI: 10.1016/S0167-6911(01)00173-6

[9] F. Bullo and M. Žefran. Modeling and controllability for a class of hybrid mechanical systems. *IEEE Transactions on Robotics and Automation*, 18(4):563–573, 2002a. DOI: 10.1109/TRA.2002.802233

[8] F. Bullo. Series expansions for analytic systems linear in controls. *Automatica*, 38(9):1425–1432, 2002a. DOI: 10.1016/S0005-1098(02)00042-0

[7] F. Bullo. Averaging and vibrational control of mechanical systems. *SIAM Journal on Control and Optimization*, 41(2):542–562, 2002b. DOI: 10.1137/S0363012999364176

[6] F. Bullo and K. M. Lynch. Kinematic controllability for decoupled trajectory planning in underactuated mechanical systems. *IEEE Transactions on Robotics and Automation*, 17(4):402–412, 2001b. DOI: 10.1109/70.954753

[5] F. Bullo. Series expansions for the evolution of mechanical control systems. *SIAM Journal on Control and Optimization*, 40(1):166–190, 2001. DOI: 10.1137/S0363012999364796

[4] F. Bullo. Stabilization of relative equilibria for underactuated systems on Riemannian manifolds. *Automatica*, 36(12):1819–1834, 2000b. DOI: 10.1016/S0005-1098(00)00115-1

[3] F. Bullo, N. E. Leonard, and A. D. Lewis. Controllability and motion algorithms for underactuated Lagrangian systems on Lie groups. *IEEE Transactions on Automatic Control*, 45(8):1437–1454, 2000. DOI: 10.1109/9.871753

[2] F. Bullo and R. M. Murray. Tracking for fully actuated mechanical systems: A geometric framework. *Automatica*, 35(1):17–34, 1999. DOI: 10.1016/S0005-1098(98)00119-8

[1] E. Masry and F. Bullo. Convergence analysis of the sign algorithm for adaptive filtering. *IEEE Transactions on Information Theory*, 41(2):489–495, 1995. DOI: 10.1109/18.370150

Computer Science Conference Publications

[6] S. Jaffe, A. Davydov, D. Lapsekili, A. K. Singh, and F. Bullo. Learning neural contracting dynamics: Extended linearization and global guarantees. In *Advances in Neural Information Processing Systems*, 2024. DOI: 10.48550/arXiv.2402.08090. URL https://openreview.net/forum?id=YYnP3Xpv3y (acceptance rate 26%)

[5] K. D. Smith, F. Seccamonte, A. Swami, and F. Bullo. Physics-informed implicit representations of equilibrium network flows. In *Advances in Neural Information Processing Systems*, Nov. 2022c. URL https://openreview.net/forum?id=PPlAVQDeL6 (acceptance rate 25.6%)

[4] P. Cisneros-Velarde and F. Bullo. A contraction theory approach to optimization algorithms from acceleration flows. In *International Conference on Artificial Intelligence and Statistics*, May 2022b. DOI: 10.48550/arXiv.2105.08832 (acceptance rate 29%)

[3] S. Jafarpour, M. Abate, A. Davydov, F. Bullo, and S. Coogan. Robustness certificates for implicit neural networks: A mixed monotone contractive approach. In *Learning for Dynamics and Control Conference*, June 2022a. DOI: 10.48550/arXiv.2112.05310 (acceptance rate as oral presentation 9%)

[2] S. Jafarpour, A. Davydov, A. V. Proskurnikov, and F. Bullo. Robust implicit networks via non-Euclidean contractions. In *Advances in Neural Information Processing Systems*, Dec. 2021. DOI: 10.48550/arXiv.2106.03194 (acceptance rate 26%)

[1] A. Silva, F. Kocayusufoglu, S. Jafarpour, F. Bullo, A. Swami, and A. K. Singh. Combining physics and machine learning for network flow estimation. In *International Conference on Learning Representations*, Online, May 2021. URL https://openreview.net/forum?id=l0V53bErniB (acceptance rate 29%)

Journal Articles Under Review and Working Documents

[10] S. Betteti, G. Baggio, F. Bullo, and S. Zampieri. Firing rate models as associative memory: Excitatory-inhibitory balance for robust retrieval. 2024b. DOI: 10.48550/arXiv.2411.07388. Working Paper

[9] S. Betteti, G. Baggio, F. Bullo, and S. Zampieri. Stimulus-driven dynamics for robust memory retrieval in Hopfield networks. 2024a. DOI: 10.48550/arXiv.2411.05849. Working Paper

[8] A. V. Proskurnikov and F. Bullo. Regular pairings for non-quadratic Lyapunov functions and contraction analysis. *SIAM Journal on Control and Optimization*, Sept. 2024. DOI: 10.48550/arXiv.2408.17350. Submitted

[7] R. Ofir, F. Bullo, and M. Margaliot. A sufficient condition for 2-contraction of a feedback interconnection. *IEEE Transactions on Automatic Control*, 2024. DOI: 10.48550/arXiv.2408.12790. Submitted

[6] G. Diaz-Garcia, F. Bullo, and J. R. Marden. Strategic coalitions in networked contest games. *IEEE Transactions on Automatic Control*, Aug. 2024. Submitted

[5] W. Ye, F. Bullo, N. E. Friedkin, and A. K. Singh. Computational models for human-AI team decision making. 2024. DOI: 10.48550/arXiv.2201.02759

[4] L. Cothren, F. Bullo, and E. Dall'Anese. Online feedback optimization and singular perturbation via contraction theory. *SIAM Journal on Control and Optimization*, Aug. 2024. DOI: 10.48550/arXiv.2310.07966. Submitted

[3] Y. John, G. Diaz-García, X. Duan, J. R. Marden, and F. Bullo. A stochastic surveillance Stackelberg game: Co-optimizing defense placement and patrol strategy. *IEEE Transactions on Automatic Control*, Feb. 2024a. DOI: 10.48550/arXiv.2308.14714. Submitted

[2] A. Davydov, V. Centorrino, A. Gokhale, G. Russo, and F. Bullo. Time-varying convex optimization: A contraction and equilibrium tracking approach. *IEEE Transactions on Automatic Control*, June 2023. DOI: 10.48550/arXiv.2305.15595. Conditionally accepted

[1] O. Askarisichani, E. Y. Huang, N. E. Friedkin, F. Bullo, and A. K. Singh. Expertise and confidence explain how social influence evolves along intellective tasks, 2020a. DOI: 10.48550/arXiv.2011.07168

Book Chapters

[12] F. Bullo and N. E. Friedkin. Perspectives on network systems and mathematical sociology. In T. Başar, editor, *Uncertainty in Complex Networked Systems: In Honor of Roberto Tempo*, pages 399–417. Springer, 2018. ISBN 978-3-030-04630-9. DOI: 10.1007/978-3-030-04630-9_11

[11] G. Notarstefano and F. Bullo. Network abstract linear programming with application to cooperative target localization. In A. Chiuso, L. Fortuna, M. Frasca, L. Schenato, and S. Zampieri, editors, *Modelling, Estimation and Control of Networked Complex Systems*, Understanding Complex Systems, pages 177–190. Springer, 2009. ISBN 978-3-642-03198-4. DOI: 10.1007/978-3-642-03199-1_11

[10] F. Bullo, J. Cortés, and S. Martínez. Distributed algorithms for robotic networks. In R. A. Meyers, editor, *Encyclopedia of Complexity and Systems Science*. Springer, 2009a. ISBN 978-0-387-75888-6. DOI: 10.1007/978-1-4614-1806-1_94. Entry 00168

[9] S. L. Smith and F. Bullo. A geometric assignment problem for robotic networks. In A. Chiuso, A. Ferrante, and S. Pinzoni, editors, *Modeling, Estimation and Control: Festschrift in Honor of Giorgio Picci on the Occasion of his Sixty-Fifth Birthday*, volume 364 of *Lecture Notes in Control and Information Sciences*, pages 271–284. Springer, 2007c. ISBN 978-3-540-73569-4. DOI: 10.1007/978-3-540-73570-0

[8] A. Ganguli, J. Cortés, and F. Bullo. Distributed coverage of nonconvex environments. In V. Saligrama, editor, *Networked Sensing Information and Control (Proceedings of the NSF Workshop on Future Directions in Systems Research for Networked Sensing, May 2006, Boston, MA)*, Lecture Notes in Control and Information Sciences, pages 289–305. Springer, 2007b. ISBN 0387688439

[7] K. Savla, E. Frazzoli, and F. Bullo. On the Dubins Traveling Salesperson Problems: Novel approximation algorithms. In G. S. Sukhatme, S. Schaal, W. Burgard, and D. Fox, editors, *Robotics: Science and Systems II (Proceedings of the Second RSS Conference, August 2006, Philadelphia PA)*. MIT Press, Cambridge, MA, 2007b. ISBN 0262693488

[6] F. Bullo. Notes on multi-agent motion coordination: Models and algorithms. In P. J. Antsaklis and P. Tabuada, editors, *Network Embedded Sensing and Control. (Proceedings of NESC'05 Workshop)*, volume 331 of *Lecture Notes in Control and Information Sciences*, pages 3–8. Springer, 2006. ISBN 3540327940

[5] M. Žefran and F. Bullo. Lagrangian dynamics. In T. R. Kurfess, editor, *Robotics and Automation Handbook*, chapter 5. CRC Press, Boca Raton, FL, 2004. ISBN 0849318041

[4] F. Bullo and J. Cortés. Adaptive and distributed coordination algorithms for mobile sensing networks. In V. Kumar, N. E. Leonard, and A. S. Morse, editors, *Cooperative Control. (Proceedings of the 2003 Block Island Workshop on Cooperative Control)*, volume 309 of *Lecture Notes in Control and Information Sciences*, pages 43–62. Springer, 2005. ISBN 3540228616

[3] F. Bullo, J. Cortés, A. D. Lewis, and S. Martínez. Vector-valued quadratic forms in control theory. In V. Blondel and A. Megretski, editors, *Unsolved Problems in Mathematical Systems and Control Theory*, pages 315–320. Princeton University Press, Princeton, NJ, 2004. ISBN 0691117489

[2] F. Bullo. Trajectory design for mechanical systems: from geometry to algorithms. In A. Astolfi, F. Gordillo, and A. J. van der Schaft, editors, *Lagrangian and Hamiltonian Methods in Nonlinear Control 2003 (A Proceedings Volume from the 2nd IFAC Workshop, Seville, Spain, April 2003)*, pages 1–16. Elsevier, Oxford, UK, 2003. ISBN 0080442781

[1] S. Martínez, J. Cortés, and F. Bullo. Motion planning and control problems for underactuated robots. In A. Bicchi, H. Christensen, and D. Prattichizzo, editors, *Control Problems in Robotics*, volume 4 of *Tracts in Advanced Robotics*, pages 59–74. Springer, 2003b. ISBN 3540002510

Refereed Conference Publications

[168] Y. John, C. Hughes, G. Diaz-Garcia, J. Marden, and F. Bullo. RoSSO: A high-performance python package for robotic surveillance strategy optimization using JAX. In *IEEE Int. Conf. on Robotics and Automation*, Yokohama, Japan, May 2024b. DOI: 10.48550/arXiv.2309.08742. To appear

[167] G. Diaz-García, F. Bullo, and J. R. Marden. Beyond the "enemy-of-my-enemy" alliances: Coalitions in networked contest games. In *IEEE Conf. on Decision and Control*, Singapore, Dec. 2023b. DOI: 10.1109/CDC49753.2023.10383807

[166] F. Seccamonte, A. K. Singh, and F. Bullo. Inference of infrastructure network flows via physics-inspired implicit neural networks. In *IEEE Conf. on Control Technology and Applications*, Bridgetown, Barbados, Aug. 2023. DOI: 10.1109/CCTA54093.2023.10252477

[165] S. Jaffe, A. K. Singh, and F. Bullo. IDKM: Memory efficient neural network quantization via implicit differentiable k-means. In *2023 ICLR Workshop on Sparsity in Neural Networks*, May 2023

[164] A. Davydov, S. Jafarpour, M. Abate, F. Bullo, and S. Coogan. Comparative analysis of interval reachability for robust implicit and feedforward neural networks. In *IEEE Conf. on Decision and Control*, Cancún, México, 2022a. DOI: 10.1109/CDC51059.2022.9993217

[163] A. Davydov, S. Jafarpour, A. V. Proskurnikov, and F. Bullo. Non-Euclidean monotone operator theory with applications to recurrent neural networks. In *IEEE Conf. on Decision and Control*, Cancún, México, Dec. 2022c. DOI: 10.1109/CDC51059.2022.9993197

[162] V. Centorrino, F. Bullo, and G. Russo. Contraction analysis of Hopfield neural networks with Hebbian learning. In *IEEE Conf. on Decision and Control*, Cancún, México, Dec. 2022. DOI: 10.1109/CDC51059.2022.9993009

[161] S. Jafarpour, A. Davydov, M. Abate, F. Bullo, and S. Coogan. Robust training and verification of implicit neural networks: A non-Euclidean contractive approach. In *ICML Workshop on Formal Verification of Machine Learning*, July 2022c. DOI: 10.48550/arXiv.2208.03889

[160] A. Davydov, A. V. Proskurnikov, and F. Bullo. Non-Euclidean contractivity of recurrent neural networks. In *American Control Conference*, pages 1527–1534, Atlanta, USA, May 2022d. DOI: 10.23919/ACC53348.2022.9867357 **(O. Hugo Schuck Best Paper Award, American Automatic Control Council, 2023)**

[159] F. Bullo, P. Cisneros-Velarde, A. Davydov, and S. Jafarpour. From contraction theory to fixed point algorithms on Riemannian and non-Euclidean spaces. In *IEEE Conf. on Decision and Control*, Dec. 2021. DOI: 10.1109/CDC45484.2021.9682883

[158] X. Duan, M. George, and F. Bullo. Markov chains with maximum return time entropy for robotic surveillance. In *IEEE Conf. on Decision and Control*, pages 5934–5939, Miami, FL, USA, Dec. 2018. DOI: 10.1109/CDC.2018.8619715

[157] E. Y. Huang, S. Jafarpour, and F. Bullo. Synchronization of coupled oscillators: The Taylor expansion of the inverse Kuramoto map. In *IEEE Conf. on Decision and Control*, pages 5340–5345, Miami, USA, Dec. 2018. DOI: 10.1109/CDC.2018.8619559

[156] V. Purba, S. V. Dhople, S. Jafarpour, F. Bullo, and B. B. Johnson. Network-cognizant model reduction of grid-tied three-phase inverters. In *Allerton Conf. on Communications, Control and Computing*, Oct. 2017a. DOI: 10.1109/ALLERTON.2017.8262732

[155] V. Purba, S. Jafarpour, B. B. Johnson, F. Bullo, and S. V. Dhople. Reduced-order structure-preserving model for parallel-connected three-phase grid-tied inverters. In *IEEE Workshop on Control and Modeling for Power Electronics*, Stanford, USA, July 2017b. DOI: 10.1109/COMPEL.2017.8013389

[154] J. R. Peters, S. Wang, and F. Bullo. Coverage control with anytime updates for persistent surveillance missions. In *American Control Conference*, pages 265–270, Seattle, WA, USA, May 2017a. DOI: 10.23919/ACC.2017.7962964

[153] W. Mei, N. E. Friedkin, K. Lewis, and F. Bullo. Dynamic models of appraisal networks explaining collective learning. In *IEEE Conf. on Decision and Control*, pages 3554–3559, Las Vegas, NV, USA, Dec. 2016. DOI: 10.1109/CDC.2016.7798803

[152] T. Susko, I. Ben-Yaacov, T. Das, L. Lenaburg, and F. Bullo. A coupled course design to strengthen multidisciplinary engineering capstone design projects. In *ASEE Annual Conference & Exposition*, New Orleans, LA, USA, June 2016. DOI: 10.18260/p.26300

[151] A. Carron, R. Patel, and F. Bullo. Hitting time for doubly-weighted graphs with application to robotic surveillance. In *European Control Conference*, pages 661–665, Aalborg, Denmark, June 2016. DOI: 10.1109/ECC.2016.7810364

[150] F. Pasqualetti, F. Dörfler, and F. Bullo. A divide-and-conquer approach to distributed attack identification. In *IEEE Conf. on Decision and Control*, pages 5801–5807, Osaka, Japan, Dec. 2015a. DOI: 10.1109/CDC.2015.7403131

[149] J. W. Simpson-Porco, F. Dorfler, and F. Bullo. A solvability condition for reactive power flow. In *IEEE Conf. on Decision and Control*, pages 2013–2017, Osaka, Japan, Dec. 2015a. DOI: 10.1109/CDC.2015.7402502

[148] M. Todescato, J. W. Simpson-Porco, F. Dörfler, R. Carli, and F. Bullo. Optimal voltage support and stress minimization in power networks. In *IEEE Conf. on Decision and Control*, pages 6921–6926, Osaka, Japan, Dec. 2015. DOI: 10.1109/CDC.2015.7403310

[147] P. Agharkar, R. Patel, and F. Bullo. Robotic surveillance and Markov chains with minimal first passage time. In *IEEE Conf. on Decision and Control*, pages 6603–6608, Los Angeles, CA, USA, Dec. 2014. DOI: 10.1109/CDC.2014.7040425

[146] W. Mei and F. Bullo. Modeling and analysis of competitive propagation with social conversion. In *IEEE Conf. on Decision and Control*, pages 6203–6208, Los Angeles, USA, Dec. 2014. DOI: 10.1109/CDC.2014.7040361

[145] F. Dörfler, J. W. Simpson-Porco, and F. Bullo. Plug-and-play control and optimization in microgrids. In *IEEE Conf. on Decision and Control*, pages 211–216, Los Angeles, USA, Dec. 2014b. DOI: 10.1109/CDC.2014.7039383

[144] A. MirTabatabaei, P. Jia, N. E. Friedkin, and F. Bullo. On the reflected appraisals dynamics of influence networks with stubborn agents. In *American Control Conference*, pages 3978–3983, Portland, USA, June 2014b. DOI: 10.1109/ACC.2014.6859256

[143] B. Gentile, J. W. Simpson-Porco, F. Dörfler, S. Zampieri, and F. Bullo. On reactive power flow and voltage stability in microgrids. In *American Control Conference*, pages 759–764, Portland, USA, June 2014. DOI: 10.1109/ACC.2014.6859434

[142] P. Agharkar and F. Bullo. Vehicle routing algorithms to intercept escaping targets. In *American Control Conference*, pages 952–957, Portland, USA, June 2014. DOI: 10.1109/ACC.2014.6858759

[141] F. Pasqualetti, S. Zampieri, and F. Bullo. Controllability metrics, limitations and algorithms for complex networks. In *American Control Conference*, pages 3287–3292, Portland, USA, June 2014c. DOI: 10.1109/ACC.2014.6858621

[140] J. W. Simpson-Porco, F. Dörfler, Q. Shafiee, J. M. Guerrero, and F. Bullo. Stability, power sharing, & distributed secondary control in droop-controlled microgrids. In *IEEE Int. Conf. on Smart Grid Communications*, pages 672–677, Vancouver, BC, Canada, Oct. 2013c. DOI: 10.1109/SmartGridComm.2013.6688036

[139] H. Bouattour, J. W. Simpson-Porco, F. Dörfler, and F. Bullo. Further results on distributed secondary control in microgrids. In *IEEE Conf. on Decision and Control*, pages 1514–1519, Florence, Italy, Dec. 2013. DOI: 10.1109/CDC.2013.6760097

[138] J. W. Simpson-Porco, F. Dörfler, and F. Bullo. Voltage stabilization in microgrids via quadratic droop control. In *IEEE Conf. on Decision and Control*, pages 7582–7589, Florence, Italy, Dec. 2013b. DOI: 10.1109/CDC.2013.6761093

[137] F. Pasqualetti, D. Borra, and F. Bullo. Finite-field consensus. In *IEEE Conf. on Decision and Control*, pages 2629–2634, Florence, Italy, Dec. 2013a. DOI: 10.1109/CDC.2013.6760279

[136] R. Patel, P. Frasca, and F. Bullo. Centroidal area-constrained partitioning for robotic networks. In *ASME Dynamic Systems and Control Conference*, Stanford, USA, Oct. 2013

[135] F. Dörfler and F. Bullo. Novel insights into lossless AC and DC power flow. In *IEEE Power & Energy Society General Meeting*, Vancouver, BC, Canada, July 2013b. DOI: 10.1109/PESMG.2013.6672260

[134] D. Romeres, F. Dörfler, and F. Bullo. Novel results on slow coherency in consensus and power networks. In *European Control Conference*, pages 742–747, Zürich, Switzerland, July 2013. DOI: 10.23919/ECC.2013.6669400 **(Best Student Paper Award Finalist)**

[133] F. Dörfler, M. Jovanović, M. Chertkov, and F. Bullo. Sparse and optimal wide-area damping control in power networks. In *American Control Conference*, pages 4295–4300, Washington, DC, USA, June 2013b. DOI: 10.1109/ACC.2013.6580499

[132] P. Jia, A. MirTabatabaei, N. E. Friedkin, and F. Bullo. On the dynamics of influence networks via reflected appraisal. In *American Control Conference*, pages 1251–1256, Washington, DC, USA, June 2013. DOI: 10.1109/ACC.2013.6580007

[131] F. Dörfler and F. Bullo. Exploring synchronization in complex oscillator networks. In *IEEE Conf. on Decision and Control*, pages 7157–7170, Maui, USA, Dec. 2012b. DOI: 10.1109/CDC.2012.6425823 **(Invited Tutorial Article)**

[130] F. Pasqualetti, F. Dörfler, and F. Bullo. Cyber-physical security via geometric control: Distributed monitoring and malicious attacks. In *IEEE Conf. on Decision and Control*, pages 3418–3425, Maui, USA, Dec. 2012c. DOI: 10.1109/CDC.2012.6426257

[129] F. Dörfler, M. Chertkov, and F. Bullo. Synchronization assessment in power networks and coupled oscillators. In *IEEE Conf. on Decision and Control*, pages 4998–5003, Maui, USA, Dec. 2012. DOI: 10.1109/CDC.2012.6426586

[128] D. Rosa, M. Franceschelli, C. Seatzu, and F. Bullo. A gossip based heuristic algorithm for heterogeneous multi-vehicle routing problems. In *IFAC Workshop on Distributed Estimation and Control in Networked Systems*, pages 73–78, Santa Barbara, CA, USA, Sept. 2012

[127] J. W. Simpson-Porco, F. Dörfler, and F. Bullo. Droop-controlled inverters are Kuramoto oscillators. In *IFAC Workshop on Distributed Estimation and Control in Networked Systems*, pages 264–269, Santa Barbara, CA, USA, Sept. 2012

[126] A. MirTabatabaei, P. Jia, and F. Bullo. Eulerian opinion dynamics with bounded confidence and exogenous inputs. In *IFAC Workshop on Distributed Estimation and Control in Networked Systems*, pages 270–275, Santa Barbara, CA, USA, Sept. 2012

[125] D. Borra, F. Pasqualetti, and F. Bullo. Continuous graph partitioning for camera network surveillance. In *IFAC Workshop on Distributed Estimation and Control in Networked Systems*, pages 228–233, Santa Barbara, CA, USA, Sept. 2012

[124] F. Zanella, F. Pasqualetti, R. Carli, and F. Bullo. Simultaneous boundary partitioning and cameras synchronization for optimal video surveillance. In *IFAC Workshop on Distributed Estimation and Control in Networked Systems*, pages 1–6, Santa Barbara, CA, USA, Sept. 2012

[123] M. Franceschelli, D. Rosa, C. Seatzu, and F. Bullo. A gossip algorithm for heterogeneous multi-vehicle routing problems. In *IFAC Conference on Analysis and Design of Hybrid Systems*, pages 325–332, Eindhoven, The Netherlands, June 2012

[122] V. Srivastava, A. Surana, and F. Bullo. Adaptive attention allocation in human-robot systems. In *American Control Conference*, pages 2767–2774, Montréal, Canada, June 2012. DOI: 10.1109/ACC.2012.6315317

[121] M. Spindler, F. Pasqualetti, and F. Bullo. Distributed multi-camera synchronization for smart-intruder detection. In *American Control Conference*, pages 5120–5125, Montréal, Canada, June 2012. DOI: 10.1109/ACC.2012.6314665

[120] F. Pasqualetti, R. Carli, and F. Bullo. A distributed method for state estimation and false data detection in power networks. In *IEEE Int. Conf. on Smart Grid Communications*, pages 469–474, Brussels, Belgium, Oct. 2011b. DOI: 10.1109/SmartGridComm.2011.6102368

[119] L. Carlone, V. Srivastava, F. Bullo, and G. C. Calafiore. A distributed algorithm for random convex programming. In *Int. Conf. on Network Games, Control and Optimization (NetGCooP)*, pages 1–7, Paris, France, Oct. 2011

[118] F. Dörfler, F. Pasqualetti, and F. Bullo. Distributed detection of cyber-physical attacks in power networks: A waveform relaxation approach. In *Allerton Conf. on Communications, Control and Computing*, pages 1486–1491, Allerton, IL, USA, Sept. 2011. DOI: 10.1109/Allerton.2011.6120343

[117] A. MirTabatabaei, F. Bullo, and M. Khammash. Flow cytometry based state aggregation of a stochastic model of protein expression. In *IEEE Conf. on Decision and Control and European Control Conference*, pages 4383–4388, Orlando, FL, USA, Dec. 2011. DOI: 10.1109/CDC.2011.6161393

[116] F. Dörfler and F. Bullo. Topological equivalence of a structure-preserving power network model and a non-uniform Kuramoto model of coupled oscillators. In *IEEE Conf. on Decision and Control and European Control Conference*, pages 7099–7104, Orlando, FL, USA, Dec. 2011c. DOI: 10.1109/CDC.2011.6160337

[115] J. W. Durham, R. Carli, P. Frasca, and F. Bullo. Dynamic partitioning and coverage control with asynchronous one-to-base-station communication. In *IEEE Conf. on Decision and Control and European Control Conference*, pages 5589–5594, Orlando, FL, USA, Dec. 2011. DOI: 10.1109/CDC.2011.6161004

[114] F. Pasqualetti, F. Dörfler, and F. Bullo. Cyber-physical attacks in power networks: Models, fundamental limitations and monitor design. In *IEEE Conf. on Decision and Control and European Control Conference*, pages 2195–2201, Orlando, FL, USA, Dec. 2011c. DOI: 10.1109/CDC.2011.6160641

[113] V. Srivastava and F. Bullo. Hybrid combinatorial optimization: Sample problems and algorithms. In *IEEE Conf. on Decision and Control and European Control Conference*, pages 7212–7217, Orlando, FL, USA, Dec. 2011b. DOI: 10.1109/CDC.2011.6160651

[112] V. Srivastava and F. Bullo. Stochastic surveillance strategies for spatial quickest detection. In *IEEE Conf. on Decision and Control and European Control Conference*, pages 83–88, Orlando, FL, USA, Dec. 2011a. DOI: 10.1109/CDC.2011.6160479

[111] V. Srivastava, K. Plarre, and F. Bullo. Adaptive sensor selection in sequential hypothesis testing. In *IEEE Conf. on Decision and Control and European Control Conference*, pages 6284–6289, Orlando, FL, USA, Dec. 2011d. DOI: 10.1109/CDC.2011.6160483

[110] G. Orosz, J. Moehlis, and F. Bullo. Delayed car-following dynamics for human and robotic drivers. In *ASME Int. Design Engineering Technical Conferences & Computers and Information in Engineering Conference*, pages 529–538, Washington, DC, USA, Aug. 2011. Paper no. DETC2011/MECH-48829

[109] F. Pasqualetti, A. Bicchi, and F. Bullo. A graph-theoretical characterization of power network vulnerabilities. In *American Control Conference*, pages 3918–3923, San Francisco, CA, USA, June 2011a. DOI: 10.1109/ACC.2011.5991344

[108] F. Dörfler and F. Bullo. On the critical coupling strength for Kuramoto oscillators. In *American Control Conference*, pages 3239–3244, San Francisco, CA, USA, June 2011a. DOI: 10.1109/ACC.2011.5991303

[107] V. Srivastava, R. Carli, F. Bullo, and C. Langbort. Task release control for decision making queues. In *American Control Conference*, pages 1855–1860, San Francisco, CA, USA, June 2011a. DOI: 10.1109/ACC.2011.5991209

[106] M. Bürger, G. Notarstefano, F. Allgöwer, and F. Bullo. A distributed simplex algorithm and the multi-agent assignment problem. In *American Control Conference*, pages 2639–2644, San Francisco, CA, USA, June 2011. DOI: 10.1109/ACC.2011.5990932

[105] A. MirTabatabaei and F. Bullo. On opinion dynamics in heterogeneous networks. In *American Control Conference*, pages 2807–2812, San Francisco, CA, USA, June 2011. DOI: 10.1109/ACC.2011.5991474

[104] T. Hatanaka, M. Fujita, and F. Bullo. Vision-based cooperative estimation via multi-agent optimization. In *IEEE Conf. on Decision and Control*, pages 2492–2497, Atlanta, GA, USA, Dec. 2010. DOI: 10.1109/CDC.2010.5717384

[103] S. H. Dandach, R. Carli, and F. Bullo. Accuracy and decision time for a class of sequential decision aggregation rules. In *IEEE Conf. on Decision and Control*, pages 4777–4782, Atlanta, GA, USA, Dec. 2010b. DOI: 10.1109/CDC.2010.5717353

[102] J. W. Durham, R. Carli, and F. Bullo. Pairwise optimal coverage control for robotic networks in discretized environments. In *IEEE Conf. on Decision and Control*, pages 7286–7291, Atlanta, GA, USA, Dec. 2010a. DOI: 10.1109/CDC.2010.5717503

[101] F. Pasqualetti, A. Franchi, and F. Bullo. On optimal cooperative patrolling. In *IEEE Conf. on Decision and Control*, pages 7153–7158, Atlanta, GA, USA, Dec. 2010c. DOI: 10.1109/CDC.2010.5717873

[100] F. Pasqualetti, R. Carli, A. Bicchi, and F. Bullo. Identifying cyber attacks via local model information. In *IEEE Conf. on Decision and Control*, pages 5961–5966, Atlanta, GA, USA, Dec. 2010b. DOI: 10.1109/CDC.2010.5717914

[99] F. Dörfler and F. Bullo. Spectral analysis of synchronization in a lossless structure-preserving power network model. In *IEEE Int. Conf. on Smart Grid Communications*, pages 179–184, Gaithersburg, MD, USA, Oct. 2010b. DOI: 10.1109/SMARTGRID.2010.5622040

[98] F. Pasqualetti, R. Carli, A. Bicchi, and F. Bullo. Distributed estimation and detection under local information. In *IFAC Workshop on Distributed Estimation and Control in Networked Systems*, pages 263–268, Annecy, France, Sept. 2010a

[97] F. Dörfler and F. Bullo. Synchronization of power networks: Network reduction and effective resistance. In *IFAC Workshop on Distributed Estimation and Control in Networked Systems*, pages 197–202, Annecy, France, Sept. 2010c

[96] F. Dörfler and F. Bullo. Synchronization and transient stability in power networks and non-uniform Kuramoto oscillators. In *American Control Conference*, pages 930–937, Baltimore, USA, June 2010a. DOI: 10.1109/ACC.2010.5530690 **(Best Student Paper Award and O. Hugo Schuck Best Paper Award, American Automatic Control Council, 2011)**

[95] S. D. Bopardikar, S. L. Smith, and F. Bullo. Vehicle placement to intercept moving targets. In *American Control Conference*, pages 5538–5543, Baltimore, USA, June 2010a. DOI: 10.1109/ACC.2010.5531001

[94] S. H. Dandach, R. Carli, and F. Bullo. Accuracy and decision time for decentralized implementations of the sequential probability ratio test. In *American Control Conference*, pages 2390–2395, Baltimore, MD, USA, June 2010a. DOI: 10.1109/ACC.2010.5530566

[93] V. Srivastava, J. Moehlis, and F. Bullo. On bifurcations in nonlinear consensus networks. In *American Control Conference*, pages 1647–1652, Baltimore, MD, USA, June 2010. DOI: 10.1109/ACC.2010.5531534

[92] J. W. Durham, A. Franchi, and F. Bullo. Distributed pursuit-evasion with limited-visibility sensors via frontier-based exploration. In *IEEE Int. Conf. on Robotics and Automation*, pages 3562–3568, Anchorage, AK, USA, May 2010b. DOI: 10.1109/ROBOT.2010.5509347

[91] J. W. Durham, R. Carli, P. Frasca, and F. Bullo. Discrete partitioning and coverage control with gossip communication. In *ASME Dynamic Systems and Control Conference*, pages 225–232, Hollywood, CA, USA, Oct. 2009

[90] S. L. Smith, S. D. Bopardikar, and F. Bullo. A dynamic boundary guarding problem with translating demands. In *IEEE Conf. on Decision and Control and Chinese Control Conference*, pages 8543–8548, Shanghai, China, Dec. 2009a. DOI: 10.1109/CDC.2009.5400538

[89] F. Pasqualetti, A. Bicchi, and F. Bullo. On the security of linear consensus networks. In *IEEE Conf. on Decision and Control and Chinese Control Conference*, pages 4894–4901, Shanghai, China, Dec. 2009. DOI: 10.1109/CDC.2009.5399524 **(General Chairs' Recognition Award for Interactive Papers)**

[88] S. H. Dandach and F. Bullo. Algorithms for regional source localization. In *American Control Conference*, pages 5440–5445, St. Louis, MO, USA, June 2009. DOI: 10.1109/ACC.2009.5160291

[87] P. Frasca, R. Carli, and F. Bullo. Multiagent coverage algorithms with gossip communication: Control systems on the space of partitions. In *American Control Conference*, pages 2228–2235, St. Louis, MO, USA, June 2009. DOI: 10.1109/ACC.2009.5160494

[86] M. Pavone, S. L. Smith, F. Bullo, and E. Frazzoli. Dynamic multi-vehicle routing with multiple classes of demands. In *American Control Conference*, pages 604–609, St. Louis, MO, USA, June 2009b. DOI: 10.1109/ACC.2009.5160557

[85] S. L. Smith, S. D. Bopardikar, F. Bullo, and J. P. Hespanha. Dynamic vehicle routing with moving demands – Part II: High speed demands or low arrival rates. In *American Control Conference*, pages 1466–1471, St. Louis, MO, USA, June 2009b. DOI: 10.1109/ACC.2009.5160541

[84] S. D. Bopardikar, S. L. Smith, F. Bullo, and J. P. Hespanha. Dynamic vehicle routing with moving demands – Part I: Low speed demands and high arrival rates. In *American Control Conference*, pages 1454–1459, St. Louis, MO, USA, June 2009b. DOI: 10.1109/ACC.2009.5160544

[83] M. Pavone, A. Arsie, E. Frazzoli, and F. Bullo. Equitable partitioning policies for robotic networks. In *IEEE Int. Conf. on Robotics and Automation*, pages 2356–2361, Kobe, Japan, May 2009a. DOI: 10.1109/ROBOT.2009.5152809

[82] K. Plarre and F. Bullo. Increasingly correct message passing averaging algorithms. In *IEEE Conf. on Decision and Control*, pages 1304–1310, Cancún, México, Dec. 2008

[81] M. Pavone, E. Frazzoli, and F. Bullo. Distributed policies for equitable partitioning: Theory and applications. In *IEEE Conf. on Decision and Control*, pages 4191–4197, Cancún, México, Dec. 2008. DOI: 10.1109/CDC.2008.4739483

[80] S. L. Smith, M. Pavone, F. Bullo, and E. Frazzoli. Dynamic traveling repairperson with priority demands. In *IEEE Conf. on Decision and Control*, pages 1206–1211, Cancún, México, Dec. 2008. DOI: 10.1109/CDC.2008.4739284

[79] F. Morbidi, F. Bullo, and D. Prattichizzo. On visibility maintenance via controlled invariance for leader-follower Dubins-like vehicles. In *IEEE Conf. on Decision and Control*, pages 1821–1826, Cancún, México, Dec. 2008. DOI: 10.1109/CDC.2008.4739154

[78] R. Carli, F. Bullo, and S. Zampieri. Quantized average consensus via dynamic coding/decoding schemes. In *IEEE Conf. on Decision and Control*, pages 4916–4921, Cancún, México, Dec. 2008. DOI: 10.1109/CDC.2008.4738886

[77] G. Piovan, I. Shames, B. Fidan, F. Bullo, and B. D. O. Anderson. On frame and orientation localization for relative sensing networks. In *IEEE Conf. on Decision and Control*, pages 2326–2331, Cancún, México, Dec. 2008. DOI: 10.1109/CDC.2008.4738809

[76] S. D. Bopardikar, F. Bullo, and J. P. Hespanha. A pursuit game with range-only measurements. In *IEEE Conf. on Decision and Control*, pages 4233–4238, Cancún, México, Dec. 2008b. DOI: 10.1109/CDC.2008.4738582

[75] J. W. Durham and F. Bullo. Smooth nearness-diagram navigation. In *IEEE/RSJ Int. Conf. on Intelligent Robots & Systems*, pages 690–695, Nice, France, Sept. 2008. DOI: 10.1109/IROS.2008.4651071

[74] S. L. Smith and F. Bullo. Dynamic multi-agent team forming: Asymptotic results on throughput versus delay. In *American Control Conference*, pages 1406–1411, Seattle, WA, USA, June 2008. DOI: 10.1109/ACC.2008.4586689

[73] M. Schwager, F. Bullo, D. Skelly, and D. Rus. A ladybug exploration strategy for distributed adaptive coverage control. In *IEEE Int. Conf. on Robotics and Automation*, pages 2346–2353, Pasadena, CA, USA, May 2008. DOI: 10.1109/ROBOT.2008.4543564

[72] M. Pavone, E. Frazzoli, and F. Bullo. Decentralized algorithms for stochastic and dynamic vehicle routing with general demand distribution. In *IEEE Conf. on Decision and Control*, pages 4869–4874, New Orleans, LA, USA, Dec. 2007. DOI: 10.1109/CDC.2007.4434989

[71] S. L. Smith and F. Bullo. Target assignment for robotic networks: Worst-case and stochastic performance in dense environments. In *IEEE Conf. on Decision and Control*, pages 3585–3590, New Orleans, LA, USA, Dec. 2007b. DOI: 10.1109/CDC.2007.4434384 **(Best Student Paper Award Finalist)**

[70] S. D. Bopardikar, F. Bullo, and J. P. Hespanha. A cooperative Homicidal Chauffeur game. In *IEEE Conf. on Decision and Control*, pages 4857–4862, New Orleans, LA, USA, Dec. 2007c. DOI: 10.1109/CDC.2007.4434251

[69] N. Nordkvist and F. Bullo. Control algorithms along relative equilibria of underactuated Lagrangian systems on Lie groups. In *IEEE Conf. on Decision and Control*, pages 6232–6237, New Orleans, LA, USA, Dec. 2007. DOI: 10.1109/CDC.2007.4434093

[68] S. Susca, F. Bullo, and S. Martínez. Synchronization of beads on a ring. In *IEEE Conf. on Decision and Control*, pages 4845–4850, New Orleans, LA, USA, Dec. 2007. DOI: 10.1109/CDC.2007.4435019

[67] K. Savla, F. Bullo, and E. Frazzoli. The coverage problem for loitering Dubins vehicles. In *IEEE Conf. on Decision and Control*, pages 1398–1403, New Orleans, LA, USA, Dec. 2007a. DOI: 10.1109/CDC.2007.4435017

[66] G. Notarstefano and F. Bullo. Network abstract linear programming with application to minimum-time formation control. In *IEEE Conf. on Decision and Control*, pages 927–932, New Orleans, LA, USA, Dec. 2007. DOI: 10.1109/CDC.2007.4434701

[65] F. Pasqualetti, A. Bicchi, and F. Bullo. Distributed intrusion detection for secure consensus computations. In *IEEE Conf. on Decision and Control*, pages 5594–5599, New Orleans, LA, USA, Dec. 2007. DOI: 10.1109/CDC.2007.4434297

[64] K. J. Obermeyer, A. Ganguli, and F. Bullo. Asynchronous distributed searchlight scheduling. In *IEEE Conf. on Decision and Control*, pages 4863–4868, New Orleans, LA, USA, Dec. 2007. DOI: 10.1109/CDC.2007.4434009

[63] A. Ganguli, J. Cortés, and F. Bullo. Visibility-based multi-agent deployment in orthogonal environments. In *American Control Conference*, pages 3426–3431, New York, USA, July 2007a. DOI: 10.1109/ACC.2007.4283034

[62] S. L. Smith and F. Bullo. Target assignment for robotic networks: Asymptotic performance under limited communication. In *American Control Conference*, pages 1155–1160, New York, USA, July 2007a. DOI: 10.1109/ACC.2007.4282420

[61] S. D. Bopardikar, F. Bullo, and J. P. Hespanha. Cooperative pursuit with sensing limitations. In *American Control Conference*, pages 5394–5399, New York, USA, July 2007b. DOI: 10.1109/ACC.2007.4282474

[60] S. D. Bopardikar, F. Bullo, and J. P. Hespanha. Sensing limitations in the Lion and Man problem. In *American Control Conference*, pages 5958–5963, New York, USA, July 2007a. DOI: 10.1109/ACC.2007.4282476

[59] K. Savla and F. Bullo. On the time complexity of formation control. In *Allerton Conf. on Communications, Control and Computing*, pages 1310–1314, Allerton, IL, USA, Sept. 2006

[58] G. Notarstefano and F. Bullo. Distributed consensus on enclosing shapes and minimum time rendezvous. In *IEEE Conf. on Decision and Control*, pages 4295–4300, San Diego, CA, USA, Dec. 2006. DOI: 10.1109/CDC.2006.377264

[57] K. Savla, F. Bullo, and E. Frazzoli. On Traveling Salesperson Problems for a double integrator. In *IEEE Conf. on Decision and Control*, pages 5305–5310, San Diego, CA, USA, Dec. 2006. DOI: 10.1109/CDC.2006.377461

[56] C. Gao, F. Bullo, J. Cortés, and A. Jadbabaie. Notes on averaging over acyclic digraphs and discrete coverage control. In *IEEE Conf. on Decision and Control*, pages 4651–4656, San Diego, CA, USA, Dec. 2006. DOI: 10.1109/CDC.2006.377456

[55] S. Susca, S. Martínez, and F. Bullo. Distributed algorithms for polygonal approximation of convex contours. In *IEEE Conf. on Decision and Control*, pages 6512–6517, San Diego, CA, USA, Dec. 2006b. DOI: 10.1109/CDC.2006.376736

[54] G. Notarstefano, K. Savla, F. Bullo, and A. Jadbabaie. Maintaining limited-range connectivity among second-order agents. In *American Control Conference*, pages 2124–2129, Minneapolis, MN, USA, June 2006. DOI: 10.1109/ACC.2006.1656533

[53] S. Susca, S. Martínez, and F. Bullo. Monitoring environmental boundaries with a robotic sensor network. In *American Control Conference*, pages 2072–2077, Minneapolis, MN, USA, June 2006a. DOI: 10.1109/ACC.2006.1656525

[52] A. Ganguli, J. Cortés, and F. Bullo. Distributed deployment of asynchronous guards in art galleries. In *American Control Conference*, pages 1416–1421, Minneapolis, MN, USA, June 2006b. DOI: 10.1109/ACC.2006.1656416 **(Best Student Paper Award)**

[51] J. J. Enright, E. Frazzoli, K. Savla, and F. Bullo. On multiple UAV routing with stochastic targets: performance bounds and algorithms. In *AIAA Conf. on Guidance, Navigation and Control*, Aug. 2005. Electronic Proceedings

[50] A. Ganguli, S. Susca, S. Martínez, F. Bullo, and J. Cortés. On collective motion in sensor networks: Sample problems and distributed algorithms. In *IEEE Conf. on Decision and Control and European Control Conference*, pages 4239–4244, Seville, Spain, Dec. 2005c. DOI: 10.1109/CDC.2005.1582828

[49] K. Savla, F. Bullo, and E. Frazzoli. On traveling salesperson problems for Dubins' vehicle: stochastic and dynamic environments. In *IEEE Conf. on Decision and Control and European Control Conference*, pages 4530–4535, Seville, Spain, Dec. 2005a. DOI: 10.1109/CDC.2005.1582876 **(Best Student Paper Award Finalist)**

[48] A. Ganguli, J. Cortés, and F. Bullo. On rendezvous for visually-guided agents in a nonconvex polygon. In *IEEE Conf. on Decision and Control and European Control Conference*, pages 5686–5691, Seville, Spain, Dec. 2005b. DOI: 10.1109/CDC.2005.1583069

[47] S. Martínez, F. Bullo, J. Cortés, and E. Frazzoli. On synchronous robotic networks – Part II: Time complexity of rendezvous and deployment algorithms. In *IEEE Conf. on Decision and Control and European Control Conference*, pages 8313–8318, Seville, Spain, Dec. 2005b. DOI: 10.1109/CDC.2005.1583508

[46] S. Martínez, F. Bullo, J. Cortés, and E. Frazzoli. On synchronous robotic networks – Part I: Models, tasks and complexity notions. In *IEEE Conf. on Decision and Control and European Control Conference*, pages 2047–2852, Seville, Spain, Dec. 2005a. DOI: 10.1109/CDC.2005.1582595

[45] A. Ganguli, J. Cortés, and F. Bullo. Maximizing visibility in nonconvex polygons: Nonsmooth analysis and gradient algorithm design. In *American Control Conference*, pages 792–797, Portland, USA, June 2005a. DOI: 10.1109/ACC.2005.1470056 **(Best Student Paper Award Finalist)**

[44] K. Savla, E. Frazzoli, and F. Bullo. On the point-to-point and traveling salesperson problems for Dubins' vehicle. In *American Control Conference*, pages 786–791, Portland, USA, June 2005b. DOI: 10.1109/ACC.2005.1470055

[43] J. Cortés, S. Martínez, and F. Bullo. Analysis and design tools for distributed motion coordination. In *American Control Conference*, pages 1680–1685, Portland, USA, June 2005b. DOI: 10.1109/ACC.2005.1470209

[42] S. Martínez, J. Cortés, and F. Bullo. On robust rendezvous for mobile autonomous agents. In *IFAC World Congress*, Prague, Czech Republic, July 2005c. Electronic Proceedings

[41] S. E. Aranda, S. Martínez, and F. Bullo. On optimal sensor placement and motion coordination for target tracking. In *IEEE Int. Conf. on Robotics and Automation*, pages 4544–4549, Barcelona, Spain, Apr. 2005

[40] E. Frazzoli and F. Bullo. Decentralized algorithms for vehicle routing in a stochastic time-varying environment. In *IEEE Conf. on Decision and Control*, pages 3357–3363, Nassau, Bahamas, Dec. 2004. DOI: 10.1109/CDC.2004.1429220

[39] J. Cortés, S. Martínez, and F. Bullo. Coordinated deployment of mobile sensing networks with limited-range interactions. In *IEEE Conf. on Decision and Control*, pages 1944–1949, Nassau, Bahamas, Dec. 2004a. DOI: 10.1109/CDC.2004.1430332

[38] C. L. Robinson, D. Block, S. Brennan, F. Bullo, and J. Cortés. Nonsmooth analysis and sonar-based implementation of distributed coordination algorithms. In *IEEE Int. Conf. on Robotics and Automation*, pages 3000–3005, New Orleans, LA, USA, Apr. 2004. DOI: 10.1109/ROBOT.2004.1307517

[37] F. Bullo and D. Liberzon. On quantized control and geometric optimization. In *IEEE Conf. on Decision and Control*, pages 2567–2572, Maui, USA, Dec. 2003. DOI: 10.1109/CDC.2003.1273008

[36] J. Cortés and F. Bullo. From geometric optimization and nonsmooth analysis to distributed coordination algorithms. In *IEEE Conf. on Decision and Control*, pages 3274–3280, Maui, USA, Dec. 2003. DOI: 10.1109/CDC.2003.1271648

[35] S. Martínez, J. Cortés, and F. Bullo. A catalog of inverse-kinematics planners for underactuated systems on matrix Lie groups. In *IEEE/RSJ Int. Conf. on Intelligent Robots & Systems*, pages 625–630, Las Vegas, NV, USA, Oct. 2003c. DOI: 10.1109/IROS.2003.1250699

[34] S. Martínez, J. Cortés, and F. Bullo. Design of oscillatory control systems. In *IEEE Conf. on Decision and Control*, pages 1509–1514, Las Vegas, NV, USA, Dec. 2002b. DOI: 10.1109/CDC.2002.1184733 **(Best Student Paper Award)**

[33] E. Frazzoli and F. Bullo. On quantization and optimal control of dynamical systems with symmetries. In *IEEE Conf. on Decision and Control*, pages 817–823, Las Vegas, NV, USA, Dec. 2002. DOI: 10.1109/CDC.2002.1184606

[32] F. Bullo, J. Cortés, A. D. Lewis, and S. Martínez. Vector-valued quadratic forms in control theory. In *Mathematical Theory of Networks and Systems*, South Bend, IN, USA, Aug. 2002a. Electronic Proceedings

[31] F. Bullo, A. D. Lewis, and K. M. Lynch. Controllable kinematic reductions for mechanical systems: concepts, computational tools, and examples. In *Mathematical Theory of Networks and Systems*, South Bend, IN, USA, Aug. 2002b

[30] J. Cortés, S. Martínez, T. Karatas, and F. Bullo. Coverage control for mobile sensing networks: variations on a theme. In *Mediterranean Conf. on Control and Automation*, Lisbon, Portugal, July 2002c. Electronic Proceedings

[29] S. Martínez, J. Cortés, and F. Bullo. Analysis of oscillatory control systems. In *IFAC World Congress*, Barcelona, Spain, July 2002a. DOI: 10.3182/20020721-6-ES-1901.00290

[28] M. W. Spong and F. Bullo. Controlled symmetries and passive walking. In *IFAC World Congress*, Barcelona, Spain, July 2002. Electronic Proceedings

[27] F. Bullo and M. Žefran. On mechanical control systems with nonholonomic constraints and symmetries. In *IEEE Int. Conf. on Robotics and Automation*, pages 1741–1746, Arlington, VA, USA, May 2002c. DOI: 10.1109/ROBOT.2002.1014793 **(Best Paper Award Finalist)**

[26] J. Cortés, S. Martínez, T. Karatas, and F. Bullo. Coverage control for mobile sensing networks. In *IEEE Int. Conf. on Robotics and Automation*, pages 1327–1332, Arlington, VA, USA, May 2002b. DOI: 10.1109/ROBOT.2002.1014727

[25] M. Žefran, F. Bullo, and M. Stein. A notion of passivity for hybrid systems. In *IEEE Conf. on Decision and Control*, pages 768–773, Orlando, FL, USA, Dec. 2001. DOI: 10.1109/.2001.980199

[24] T. Karatas and F. Bullo. Randomized searches and nonlinear programming in trajectory planning. In *IEEE Conf. on Decision and Control*, pages 5032–5037, Orlando, FL, USA, Dec. 2001. DOI: 10.1109/.2001.981008

[23] J. Cortés, S. Martínez, and F. Bullo. On nonlinear controllability and series expansions for Lagrangian systems with damping. In *IEEE Conf. on Decision and Control*, pages 2619–2624, Orlando, FL, USA, Dec. 2001. DOI: 10.1109/.2001.980662

[22] F. Bullo and K. M. Lynch. Kinematic controllability and decoupled trajectory planning for underactuated mechanical systems. In *IEEE Int. Conf. on Robotics and Automation*, pages 3300–3307, Seoul, South Korea, Apr. 2001a. DOI: 10.1109/ROBOT.2001.933127

[21] G. J. Toussaint, T. Başar, and F. Bullo. Motion planning for nonlinear underactuated vehicles using H^∞ techniques. In *American Control Conference*, pages 4907–4102, Arlington, VA, USA, June 2001. DOI: 10.1109/ACC.2001.946363

[20] J. W. Melody, T. Başar, and F. Bullo. On nonlinear controllability of homogeneous systems linear in the controls. In *IEEE Conf. on Decision and Control*, pages 3971–3976, Sydney, Australia, Dec. 2000. DOI: 10.1109/CDC.2000.912335

[19] G. J. Toussaint, T. Başar, and F. Bullo. H^∞-optimal tracking control techniques for nonlinear underactuated systems. In *IEEE Conf. on Decision and Control*, pages 2078–2083, Sydney, Australia, Dec. 2000b. DOI: 10.1109/CDC.2000.914100

[18] F. Bullo and A. D. Lewis. On the homogeneity of the affine connection model for mechanical control systems. In *IEEE Conf. on Decision and Control*, pages 1260–1265, Sydney, Australia, Dec. 2000. DOI: 10.1109/CDC.2000.912028

[17] F. Bullo. Series expansions for analytic systems linear in the controls. In *IEEE Conf. on Decision and Control*, pages 3392–3397, Sydney, Australia, Dec. 2000a. DOI: 10.1109/CDC.2000.912227

[16] F. Bullo and W. T. Cerven. On trajectory optimization for polynomial systems via series expansions. In *IEEE Conf. on Decision and Control*, pages 772–777, Sydney, Australia, Dec. 2000. DOI: 10.1109/CDC.2000.912862

[15] G. J. Toussaint, T. Başar, and F. Bullo. Tracking for nonlinear underactuated surface vessels with generalized forces. In *IEEE Int. Conf. on Control Applications*, pages 355–360, Anchorage, AK, USA, Sept. 2000a. DOI: 10.1109/CCA.2000.897450

[14] F. Bullo. On perturbation methods for mechanical control systems. In N. E. Leonard and R. Ortega, editors, *Proceedings of the First IFAC Workshop on Lagrangian and Hamiltonian Methods for Nonlinear Control*, pages 163–164, Princeton, NJ, USA, Mar. 2000c

[13] M. Žefran, F. Bullo, and J. Radford. An investigation into non-smooth locomotion. In *IEEE Int. Conf. on Robotics and Automation*, pages 2038–2043, Detroit, MI, USA, May 1999. DOI: 10.1109/ROBOT.1999.770407

[12] F. Bullo. Stabilization of relative equilibria for systems on Riemannian manifolds. In *American Control Conference*, pages 1618–1622, San Diego, CA, USA, June 1999b. DOI: 10.1109/ACC.1999.786104

[11] F. Bullo. A series describing the evolution of mechanical control systems. In *IFAC World Congress*, volume 32, pages 2604–2609, Beijing, China, July 1999a. DOI: 10.1016/S1474-6670(17)56443-5

[10] F. Bullo and M. Žefran. On modeling and locomotion of hybrid mechanical systems with impacts. In *IEEE Conf. on Decision and Control*, pages 2633–2638, Tampa, FL, USA, Dec. 1998. DOI: 10.1109/CDC.1998.757850

[9] F. Bullo. Exponential stabilization of relative equilibria for mechanical systems with symmetries. In *Mathematical Theory of Networks and Systems*, pages 987–990, Padova, Italy, July 1998

[8] F. Bullo and N. E. Leonard. Motion primitives for stabilization and control of underactuated vehicles. In *IFAC Symposium on Nonlinear Control Systems*, volume 1, pages 133–138, Enschede, the Netherlands, July 1998. DOI: 10.1016/S1474-6670(17)40323-5

[7] F. Bullo and R. M. Murray. Trajectory tracking for fully actuated mechanical systems. In *European Control Conference*, page 707, Brussels, Belgium, July 1997

[6] F. Bullo and N. E. Leonard. Motion control for underactuated mechanical systems on Lie groups. In *European Control Conference*, page 480, Brussels, Belgium, July 1997

[5] F. Bullo and R. M. Murray. Experimental comparison of trajectory trackers for a car with trailers. In *IFAC World Congress*, volume F, pages 407–412, San Francisco, CA, USA, July 1996. DOI: 10.1016/S1474-6670(17)58101-X

[4] F. Bullo and A. D. Lewis. Configuration controllability of mechanical systems on Lie groups. In *Mathematical Theory of Networks and Systems*, St. Louis, MO, USA, June 1996

[3] F. Bullo and R. M. Murray. Proportional derivative (PD) control on the Euclidean group. In *European Control Conference*, pages 1091–1097, Rome, Italy, June 1995

[2] F. Bullo, R. M. Murray, and A. Sarti. Control on the sphere and reduced attitude stabilization. In *IFAC Symposium on Nonlinear Control Systems*, pages 495–501, Tahoe City, CA, USA, June 1995. DOI: 10.1016/S1474-6670(17)46878-9

[1] E. Masry and F. Bullo. Performance analysis of adaptive filters using the sign algorithm. In *IEEE International Symposium on Information Theory*, page 360, Trondheim, Norway, June 1994. DOI: 10.1109/ISIT.1994.394658

Opinion Editorials

- F. Bullo. The visible values of volunteering in the hidden technology world (President's Message). *IEEE Control Systems*, 38(1):9–10, 2018d. DOI: 10.1109/MCS.2017.2766302
- F. Bullo. On the developing world of copyrights (President's Message). *IEEE Control Systems*, 38(2):9–10, 2018a. DOI: 10.1109/MCS.2017.2786439
- F. Bullo. On the tools of our trade (President's Message). *IEEE Control Systems*, 38(3):9–11, 2018e. DOI: 10.1109/MCS.2018.2810482
- F. Bullo. Nurturing diversity and reducing implicit evaluation bias (President's Message). *IEEE Control Systems*, 38(4):8–13, 2018b. DOI: 10.1109/MCS.2018.2830018
- F. Bullo. Getting it write: Tips for effective communication (President's Message). *IEEE Control Systems*, 38(5): 8–9, 2018f. DOI: 10.1109/MCS.2018.2851001
- F. Bullo. A year in review (President's Message). *IEEE Control Systems*, 38(6):10–14, 2018c. DOI: 10.1109/MCS.2018.2866644

Research Funding

Completed Projects

(G1) University of Illinois Research Board, *Stability and Locomotion in Robotic Mechanisms and Autonomous Vehicles*, F. Bullo, $25K, 1/99 – 01/00.

(G2) Army Research Office, DAAD 190110716, *Trajectories for Locomotion Systems: A Geometric and Computational Approach via Series Expansions*, F. Bullo, $210K, 9/01–8/04.

(G3) National Science Foundation, Robotics and Human Augmentation Program, IIS-0118146, *Algorithmic and Differential-Geometric Trajectory Design.* F. Bullo (PI, $155K) and S. M. Lavalle (Co-PI), total amount $300K, 9/01–8/04.

(G4) National Science Foundation, Dynamic Systems and Control Program, CMS-0100162, *Perturbation Methods for Nonlinear Control of Lagrangian Systems,* F. Bullo, $163K, 9/01–8/04.

(G5) National Science Foundation, Control, Networks, and Computational Intelligence Program, ECS-0122412, *Layered Architectures for Complex Networked Systems,* M. W. Spong (PI), F. Bullo (Co-PI, $67K), total amount $270K, 9/01–8/04.

(G6) University of Illinois Initiative in Trustworthy Networked Systems, *AeroTruNet: A Trustworthy Networked Aerospace System*, E. Frazzoli (PI), F. Bullo (Co-PI), $40K, 10/02–10/03.

(G7) Office of Naval Research, Mathematical, Computer, and Information Sciences Division, FY03 Young Investigator Program, N00014-03-1-0512, *Distributed and Adaptive Coordination Algorithms for Mobile Sensing Networks*, F. Bullo, $300K, 6/03–5/06.

(G8) Defense Advanced Research Projects Agency and Air Force Office of Scientific Research, MURI Program, F49620-02-1-0325, *Cooperative Networked Control of Dynamical Peer-to-Peer Vehicle Systems*, Consortium of UIUC (lead), Stanford, MIT, G.E. Dullerud (PI), F. Bullo (Co-PI, $300K), total amount $5M, 5/02–8/07.

(G9) National Science Foundation, Dynamic Systems and Control Program, CMS-0442041 (former CMS-0301423) *Collaborative Research: Kinematic Reductions for Underactuated Mechanical Systems*, F. Bullo, $160K, 9/03 – 8/07.

(G10) National Science Foundation, Robotics and Human Augmentation Program, IIS-0525543 (former IIS-0330008) *SENSORS: Cooperative Robotics and Geometric Optimization for Mobile Sensors*, F. Bullo, $300K, 9/03 – 8/08.

(G11) National Science Foundation, Dynamic Systems and Control Program, CMS-0626457 *Distributed Illumination Problems for Visually-guided Agents*, F. Bullo, $240K, 9/06 – 8/09.

(G12) Office of Naval Research, DURIP Program, N00014-08-1-0791, *DURIP: Large-Scale Multimodal Wireless Sensor Network*, B. S. Manjunath (PI), F. Bullo (Co-PI), total amount $655K, 5/08–4/09.

(G13) Army Research Office, Institute for Collaborative Biotechnology, W911NF-09-D-0001, *Bio-inspired Stochastic Search and Decision Making for Robotic Networks*, F. Bullo, total amount $350K, 6/07–12/09.

(G14) Office of Naval Research, Mathematical, Computer, and Information Sciences Division, N00014-07-1-0721, *Algorithmic Coordination in Robotic Networks*, F. Bullo, $304K, 1/07–6/10.

(G15) National Science Foundation, Division of Computer and Network Systems, CNS-0834446, *Collaborative Research: CSR-EHCS(EHS), TM: Distributed Sensing on Camera Sensor Networks via Robust Dynamic Consensus on Manifolds*, F. Bullo, $163K, 9/08–8/11.

(G16) Army Research Office, MURI Program, W911NF-05-1-0219, *Scalable Swarms of Autonomous Robots and Mobile Sensors*, Consortium of UPenn (lead), UC Santa Barbara, MIT, Yale, UC Berkely, V. Kumar (PI), F. Bullo (Co-PI, $725K), total amount $5M, 5/05–7/12.

(G17) Air Force Office of Scientific Research, MURI Program, FA9550-07-1-0528 *Behavioral Dynamics in the Cooperative Control of Mixed Human/Robotics Teams*, Consortium of BU (lead), Princeton, University of Washington, UCSB, J. Baillieul (PI), F. Bullo (Co-PI, $742K), total amount $7.3M, 5/07–6/11.

(G18) National Science Foundation, Robotics and Human Augmentation Program, IIS-0904501 *RI: Medium: Collaborative Research: Minimalist Mapping and Monitoring*, S. Suri (PI) and F. Bullo (Co-PI, $432K), total amount $1.28M, 8/09–7/13.

(G19) Army Research Office, Institute for Collaborative Biotechnology, W911NF-09-D-0001, *Bio-inspired Information Propagation and Opinion Dynamics in Social Networks* and *Opinion Dynamics in Social Networks*, F. Bullo, $492K, 12/09–11/13.

(G20) Army Research Office, W911NF-11-1-0092, *Dynamic Routing and Coordination in Multi-Agent Networks*, F. Bullo, $500K, 3/11–2/15.

(G21) Army Research Office, Institute for Collaborative Biotechnology, W911NF-09-D-0001, *Opinions and Influence Dynamics in Socio-Cognitive Networks*, F. Bullo, $225K, 12/13–6/15.

(G22) National Science Foundation, CyberPhysical Program, CPS-1035917 *CPS: Medium: Collaborative Research: Dynamic Routing and Robotic Coordination for Oceanographic Adaptive Sampling*, F. Bullo (PI, $360K) and S. Suri (Co-PI), total amount $1.05M, 10/10–9/15.

(G23) National Science Foundation, CyberPhysical Program, CPS-1135819 *CPS: Medium: Collaborative Research: The CyberPhysical Challenges of Transient Stability and Security in Power Grids*, F. Bullo (PI, $375K), total amount $1.12M, 9/11–9/15.

(G24) Army Research Office, W911NF-15-1-0274, *Dynamic Processes over Dynamic Social Networks*, F. Bullo, (PI, $50K), 7/15–3/16.

(G25) Army Research Office, Institute for Collaborative Biotechnology, W911NF-09-D-0001, *Supervisory Controller for Optimal Role Allocation for Cueing of Human Operators (SCORCH)*, F. Bullo, (Co-PI, $250K), total amount $2.1M, 4/14–6/18.

(G26) Army Research Office, W911NF-15-1-0577 *Validating Team Performance Models and Enlarging the Scale of Human Subject Experiments*, A. K. Singh (PI), F. Bullo (Co-PI, $166K), total amount $500K, 3/18-9/18.

(G27) Department of Energy, SunShot National Laboratory Multiyear Partnership (SuNLaMP), XAT-6-62531-01, *Stabilizing the Power System in 2035 and Beyond*, Consortium of National Renewable Energy Laboratory (lead), UCSB and University of Minnesota. Brian Johnson (PI), F. Bullo (Co-PI, $342K), total amount $3.8M, 2/16–3/19.

(G28) Air Force Office of Scientific Research, FA9550-15-1-0138, *Stochastic Surveillance and Distributed Coordination*, F. Bullo, (PI, $450K), 6/15–5/20.

(G29) Army Research Office, MURI Program, W911NF-15-1-0577, *QUANTA: Quantitative Network-based Models of Adaptive Team Behavior*, Consortium of UCSB (lead), MIT, Northwestern, USC. A. K. Singh (PI), F. Bullo (Co-PI, $1,033K), total amount $6.25M, 8/15–4/21.

(G30) Defense Threat Reduction Agency, HDTRA1-19-1-0017, *Inferring Network Structure and Flows Using Partial Observations*, UCSB and ARL, A. K. Singh (PI), F. Bullo (Co-PI, $466K), total amount $1.4M, 5/14/19-6/2/22.

Current Projects

(G31) Air Force Office of Scientific Research, FA9550-21-1-0203, *Resource Allocation in Complex Adversarial Environments*, UCSB, J. Marden (PI) and F. Bullo (Co-PI, $375K), total amount $750K, 5/1/21-4/30/25.

(G32) Air Force Office of Scientific Research, FA9550-22-1-0059, *Contraction Theory for Network Systems: Stability, Control and Learning*, UCSB, F. Bullo (PI), total amount $394K, 12/15/21-12/14/24.

(G33) U.S. Army Engineer Research and Development Center (ERDC), W912HZ-22-2-0010, *Inference of Missing Edges and Flows in Infrastructure Networks*, UCSB, A. K. Singh (PI), F. Bullo (Co-PI, $225K), total amount $450K, 4/1/22-3/31/25.

(G34) Army Research Office, W911NF-22-1-0233, *Cognitive Models and Strategies for High-Performance Human-AI Teams*, F. Bullo (PI), $900K, 9/1/22–8/31/25

(G35) Office of Naval Research, MURI Program, N00014-22-1-2813, *HUDDLE: Human Autonomy Teaming in Uncertain and Dynamic Environments*, F. Bullo (Co-PI, $699K), 9/1/22–8/31/25

(G36) Army Research Office, MURI Program, W911NF-24-1-0228, *NEURAL-SYNC: From Synchronized Oscillations to Neural Computing, Communication, and Adaptation*, Consortium of UCSB, UCSD, UCR, University of Pennsylvania, MIT, Northwestern University and University of Virginia. F. Bullo (PI), total amount $9M, 8/14/2024–8/13/2029.

(G37) Toyota Central Research and Development Lab. *Visiting Scientist Agreement*, F. Bullo (PI), 10/1/24–3/31/25