TommasoMenara

PhD Candidate at University of California Riverside

contact

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languages

English

Italian

programming

Python

Matlab & Simulink

Wolfram (Mathematica)

Education

2016–present **Phd** Mechanical Engineering — University of California, Riverside
Network Neuroscience and Control Theory

2013–2016 **Laurea Magistrale** (M.Sc. equivalent) — University of Pisa, Italy
Robotics and Control Engineering

2010–2013 **Laurea** (B.Sc. equivalent) — University of Padova, Italy
Mechatronics Engineering

Publications

Journal papers

[J3]. T. Menara, G. Baggio, D.S. Bassett, F. Pasqualetti, *Stability Conditions for Cluster Synchronization in Networks of Heterogeneous Kuramoto Oscillators*, IEEE Transactions on Control of Network Systems, 2019 (In Press)

[J2]. J. Stiso, A. N. Khambhati, T. Menara, A. E. Kahn, J. M. Stein, S. R. Das, R. Gorniak, J. Tracy, B. Litt, K. A. Davis, F. Pasqualetti, T. Lucas, D. S. Bassett, *White Matter Network Architecture Guides Direct Electrical Stimulation Through Optimal State Transitions*. Cell Reports, vol.28, no. 10, pp. 2554-2566, Sep 2019.

[J1]. T. Menara, D.S. Bassett, F. Pasqualetti, *Structural Controllability of Symmetric Networks*. IEEE Transactions on Automatic Control, vol. 64, no. 9, pp. 3740-3747, Sep 2019.

Conference proceedings

[C5]. T. Menara, G. Baggio, D.S. Bassett, F. Pasqualetti, *A Framework to Control Functional Connectivity in the Human Brain*. IEEE Conference on Decision and Control. Nice, France, December 2019 (To Appear)

[C4]. T. Menara, G. Baggio, D.S. Bassett, F. Pasqualetti, *Exact and Approximate Stability Conditions for Cluster Synchronization of Kuramoto Oscillators*. American Control Conference. Philadelphia, USA, July 2019 ***(Best Student Paper Award)***

[C3]. T. Menara, V. Katewa, D.S. Bassett, F. Pasqualetti, *The Structured Controllability Radius of Symmetric (Brain) Networks*. American Control Conference. Milwaukee, USA, June 2018

[C2]. T. Menara, G. Bianchin, M. Innocenti, F. Pasqualetti, *On the Number of Strongly Structurally Controllable Networks*. American Control Conference. Seattle, USA, May 2017

[C1]. M. Laurino, T. Menara, A. Stella, M. Betta, A. Landi, *Procoagulant control strategies for the human blood clotting process*. 37th Annual Conference of the IEEE Engineering in Medicine and Biology Society. Milano Conference Center, Milan, Italy, August 2015

Awards

2019 **Best Student Paper Award** American Automatic Control Council
Winner of the Best Student Paper Award at the 2019 IEEE American Control Conference.

2017 **IEEE Student Travel Award** IEEE
Travel award to attend the 2017 IEEE American Control Conference.

2016 **Dean's Distinguished Fellowship** University of California, Riverside
Fellowship awarded based on student's academic performance and project proposal. Fellowship guarantees stipend and full coverage of tuition for two years in the Ph.D. program.

Experience

2016–present **IEEE - IFAC** University of California, Riverside
Referee/Reviewer
Reviewer for journals such as: IEEE Transactions on Automatic Control (IEEE-TAC), IEEE Transactions on Control of Networked Systems (IEEE-TCNS), IEEE Control Systems Letters (IEEE L-CSS), IFAC Automatica, SIAM Journal on Control and Optimization. Elsevier European Journal of Control. Springer Nonlinear Dynamics.
Reviewer for international conferences such as: Conference on Decision and Control (CDC), American Control Conference (ACC), European Control Conference (ECC), International Conference on Control, Decision and Information Technologies (CoDIT), Conference on Control Technologies (CCTA).

2019 **Brain Information Communication Research Laboratory Group** ATR, Kyoto, Japan
Intern
Project on dynamical data-driven models for the analysis of multi-site resting-state fMRI datasets and the appraisal of neurofeedback treatments.

2018–2019 **HUB Governing Board** University of California, Riverside
Vice-Chair
Member of the student governing board that controls the Highlander Union and reports to the Vice Chancellor of Student Affairs. The board develops all facility operations and usage policies, approves all budgetary aspects, and provides comment on HUB Programming, initiatives, operations, etc.

2018–2019 **Graduate Students Association** University of California, Riverside
Public Relations Officer
PR Officer in the Graduate Students Association. Responsible of organizing campus-wide social events. Management of the budget for social events. Vice-chair of the HUB Governing Board.

2017–2018 **Graduate Students Association** University of California, Riverside
International Student Affairs Officer
ISAO in the Graduate Students Association. Monitoring of campus issues and legislative developments that affect international graduate students. Member of different committees related to international education.

2016–2017 **Graduate Students Association** University of California, Riverside
MEGSA Representative
Mechanical Engineering Representative in the Graduate Students Association.

2015–2016 **Mechanical Engineering Department** University of California, Riverside
Visiting Scholar
Research on strong structural controllability of network systems during a 6-months period.

2013–2015 **Department of Information Engineering** University of Pisa, Italy
Student Projects

- Design, production and coding of an autonomous floor-cleaning robot.
- System identification of a Inertially Stabilized Platform (ISP). Developed controllers for the gimbals of the ISP.
- Modeled the humanoid robot Walkman (developed by the IIT Genova) in Simulink/Simmechanics. Combined Path Planning, Trajectory Tracking and Motion Control to make the robot achieve tasks while walking. Developed the steering function for a RRT algorithm to decide whether the connection between different states is feasible or not.
- Computer Aided Engineering (CAE) Methods: Modeling of mechanical parts and stress simulations using Solidworks.
- Identification of Uncertain Systems: Identification and parameter fitting of an electromechanical diesel engine actuator valve.
- Real-Time Systems: Developed a C graphic program (Allegro and Pthread libraries) in order to simulate the control of a DC motor controlled by a PID controller.

2012–2013 **Freescale Smart Cars Race** University of Padova, Italy
Embedded Programmer
Developed a variable structure PID to control a smart car model using the inputs from two linear vision sensors. Design of various modifications to the car chassis, such as camera mounts and LED circuit board to improve performances.

Communication skills

2016-present **Oral Presentation** International Conferences
Presented the results in the papers [C2]-[C4].

2019 **Talk** ATR, Kyoto, Japan
Presented project results on data-driven models for dynamic neurofeedback.

2019 **Talk** SoCal Control Workshop, University of Southern California
Presented improved conditions for cluster synchronization of Kuramoto oscillators and their relevance in neuroscience.

2018 **Poster** Computational Neuroimaging and Neuroengineering Symposium, UCR
Presented my results on cluster synchronization of Kuramoto oscillators.

2018 **Talk** University of California, Riverside
Given a talk on cluster synchronization in network of Kuramoto oscillators during the Mechanical Engineering Symposium.

2016 **Poster** Workshop on Brain Dynamics and Neurocontrol Engineering, WUSTL
Presented my results on structural controllability of brain networks.

Interests

I love traveling and learning about different cultures. I like to de-stress by performing outdoor activities or trying new foods.
Hobbies: passion for technology, cooking, jazz music, philosophy, architecture and camping.
Sports: skiing, golf, tennis, swimming, hiking.