Elisa Franco

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Employment

Professor, University of California at Los Angeles 2023-Present
Associate Professor, University of California at Los Angeles 2018- 2023
Department of Mechanical and Aerospace Engineering, Bioengineering
Assistant Professor, University of California at Riverside 2011–2018
Department of Mechanical Engineering

Education

Ph.D. California Institute of Technology, Control and Dynamical Systems 2005-2012
Ph.D. University of Trieste, Information Engineering 2003-2007
Laurea degree (Summa cum Laude), University of Trieste, Power Systems Engineering 1997-2002

Other appointments

Visiting professor École Normale Supérieure, Paris Dec 2024
Chemistry Department
Visiting associate California Institute of Technology 2011-2016
Computing and Mathematical Sciences
Co-director of the Caltech Project for Effective Teaching 2008 - 2010
Advertising.com (AOL subsidiary), Research and Development Intern 2008
Estimation algorithms for performance of online advertisement campaigns
Visiting scholar, University of California at Los Angeles 2004-2005
Department of Mechanical and Aerospace Engineering

Honors and Awards

- NIH NIGMS MIRA Outstanding Investigator Award, 2024
- Rose Hills Foundation Young Investigator Award, 2021
- ISSNAF Young Investigator award, 2019
- NSF CAREER award, 2015
- Outstanding Research Award, University of California at Riverside, Mechanical Engineering Department, 2014
- Hellman fellow, 2013

Publications

Journal Articles

[74] T. Anand, R. Salman, B. Castaneda Camacho, V. Gonzales, E. Safar, E. Franco, and J. L. Blatti. “Investigating substrates Amplifu Red and ABTS (2,2’-azino-bis(3-ethylbenzothiazoline-6-sulfonic acid) in the colorimetric detection of DNAzyme activity localized to DNA condensates”. In: *Journal of Advanced Technological Education (J-ATE)* (2025).

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[71] A. Grob, T. Copeman, S. L. Chen, J. Ganrielli, Y. Elani, E. Franco, and F. Ceroni. “Design of an intracellular aptamer-based fluorescent biosensor to track burden in E. coli”. In: *Trends in Biotechnology, to appear* (2025).

[70] J. Kim and E. Franco. “Hashing the message with cells”. In: *Nature Chemical Biology* (2025), pp. 1, 2.

[69] D. Osmanovic and E. Franco. “Generating forces in confinement via polymerization”. In: *Soft matter* (2025).

[68] D. Osmanović and E. Franco. “Complex dynamics in reaction-phase separation systems”. In: *Physical Review E* 111.2 (2025), p. 025404.

[67] A. Tang, V. M. Gobry, S. Li, E. S. Andersen, and E. Franco. “Switchable RNA motifs for dynamic transcriptional control of RNA condensates”. In: *Nucleic Acids Research, to appear* (2025).

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[62] K. A. Haynes, L. B. Andrews, C. L. Beisel, J. Chappell, C. E. Cuba Samaniego, J. E. Dueber, M. J. Dunlop, E. Franco, J. B. Lucks, V. Noireaux, et al. “Ten Years of the Synthetic Biology Summer Course at Cold Spring Harbor Laboratory”. In: *ACS Synthetic Biology* 13.9 (2024), pp. 2635–2642.

[61] D. Sorrentino, S. Ranallo, E. Nakamura, E. Franco, and F. Ricci. “Synthetic Genes For Dynamic Regulation Of DNA-Based Receptors”. In: *Angewandte Chemie* (2024), e202319382.

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[58] A. Tang, A. Afasizheva, C. Cano, K. Plath, D. Black, and E. Franco. “Optimization of RNA Pepper sensors for the detection of arbitrary RNA targets”. In: *ACS synthetic biology* (2024), pp. 2023–06.

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[4] S. Sacone, E. Franco, and T. Parisini. “A hybrid control scheme for freeway systems”. In: *IFAC Proceedings Volumes*. Vol. 38. 1. Elsevier, 2005, pp. 108–113.

[3] E. Franco, T. Parisini, and M. M. Polycarpou. “Cooperative control of discrete-time agents with delayed information exchange: A receding-horizon approach”. In: *Decision and Control, 2004. CDC. 43rd IEEE Conference on*. Vol. 4. IEEE. 2004, pp. 4274–4279.

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Book Chapters

[8] J. M. Stewart, H. K. Subramanian, and E. Franco. “Assembly of RNA Nanostructures from Double-Crossover Tiles”. In: *Cell-Free Gene Expression*. Springer, 2022, pp. 293–302.

[7] F. Blanchini, E. Franco, and G. Giordano. “Structural Properties of Biological and Ecological Systems”. In: *Encyclopedia of Systems and Control*. Ed. by T. S. John Baillieul. Springer-Verlag London, 2021.

[6] M. Schwarz-Schilling, J. Kim, C. Cuba, M. Weitz, E. Franco, and F. C. Simmel. “Building a Synthetic Transcriptional Oscillator”. In: Springer New York, 2016, pp. 185–199.

[5] E. Franco and K. E. Galloway. “Feedback Loops in Biological Networks”. In: Springer New York, 2015, pp. 193–214.

[4] F. Blanchini and E. Franco. “Structural analysis of biological networks”. In: *A Systems Theoretic Approach to Systems and Synthetic Biology I: Models and System Characterizations*. Springer Netherlands, 2014, pp. 47–71.

[3] J. Kim and E. Franco. “Synthetic Biochemical Devices for Programmable Dynamic Behavior”. In: *A Systems Theoretic Approach to Systems and Synthetic Biology II: Analysis and Design of Cellular Systems*. Springer Netherlands, 2014, pp. 273–295.

[2] E. Franco, J. Kim, and F. C. Simmel. “Transcriptional oscillators”. In: Wiley-VCH Verlag GmbH & Co. KGaA, 2013, pp. 83–112.

[1] R. Olfati-Saber, E. Franco, E. Frazzoli, and J. S. Shamma. “Belief consensus and distributed hypothesis testing in sensor networks”. In: *Networked Embedded Sensing and Control*. Springer Berlin Heidelberg, 2006, pp. 169–182.

Patents

[5] E. Franco, S. Li, and A. Tang. “Methods for building artificial RNA organelles in living cells”. U.S. Provisional Patent Application No. 63/679,560. 2024.

[4] E. Franco, S. Li, A. Tang, G. Fabrini, and L. Di Michele. “Single stranded RNA motifs for in vitro cotranscriptional production of orthogonal phase separated condensates”. U.S. Provisional Patent Application No. 63/660,018. 2024.

[3] A. Choudhary, K. Cox, B. Maji, P. Wu, H. Subramanian, and E. Franco. “CRISPR protein inhibitors”. US Patent 11,760,984. Sept. 2023.

[2] A. Choudhary, K. Cox, H. Subramanian, and E. Franco. “Compositions and methods for regulating proteins and nucleic acids activities”. US Patent App. 16/776,503. July 2020.

[1] A. Choudhary, P. Wu, B. Maji, E. Franco, and H. K. Subramanian. “Inhibitors of RNA guided nucleases and uses thereof”. US Patent App. 16/346,392. Aug. 2019.

Archival and pre-prints

[5] S. Li, E. J. Payson, Y. Kim, A. A. Tang, D. Osmanovic, K. Wang, A. Bermudez, W. Xiao, N. Lin, K. Plath, D. Black, and E. Franco. *Programmable artificial RNA condensates in mammalian cells (in revision with Nature nanotechnology)*. 2025.

[4] E. Nakamura, F. Blanchini, G. Giordano, A. Hoffmann, and E. Franco. *Temporal dose inversion properties of adaptive biomolecular circuits*. 2025. bioRxiv: `https://doi.org/10.1101/2025.02.10.636967`.

[3] E. Nakamura, E. Franco, and F. Blanchini. *Temporal Dose-Response Inversion in a Biological Circuit (submitted to the 2025 IEEE Conference on Decision and Control)*. 2025.

[2] D. A. Tanase, D. Osmanović, R. Rubio-Sánchez, L. Malouf, E. Franco, and L. Di Michele. *Internal phase separation in synthetic DNA condensates*. 2025. bioRxiv: `https://doi.org/10.1101/2025.03.19.644034`.

[1] E. Franco. *A feedback SIR (fSIR) model highlights advantages and limitations of infection-dependent mitigation strategies*. 2020. arXiv: `2004.13216 [q-bio.PE]`.

Grants

Amounts listed: award to PI Franco.

Research grants and fellowships

- Department of Energy 2025–2028
  Principal Investigator, $879,000
  Title: Programmable dynamic self-assembly of DNA nanostructures (Renewal)
- National Institutes of Health MIRA NIGMS Award 2024–2029
  Principal Investigator, $1,914 M
  Title: Developing synthetic RNA organelles for spatiotemporal separation, control, and monitoring in living cells
- Alfred Sloan Foundation 2024–2029
  co-Principal Investigator, $500,000 (total $1,5M)
  Title: Programmable dynamic molecular condensates (Renewal)
- Associazione Italiana per la Ricerca sul Cancro (AIRC) 2023–2025
  Mentor, $141,990
  Title: Development of DNA condensates for antibody-mediated separation of clinically relevant biomarkers
  Awardee: Daniela Sorrentino
- Department of Energy 2022–2025
  Principal Investigator, $739,000
  Title: Programmable dynamic self-assembly of DNA nanostructures (Renewal)

• National Science Foundation 2021–2025
Principal Investigator, $841,824 (total $3M)
Title: FMRG-Bio: DNA & RNA Condensate droplets for programmable separation and manufacture of biomolecules

• National Science Foundation 2021–2025
Principal Investigator, $600,000
Title: SHF Medium: A language for molecular communication using temporal codes

• Alfred Sloan Foundation 2021–2024
co-Principal Investigator, $375,000 (total $1.5M)
Title: Programmable dynamic molecular condensates

• Eli & Edythe Broad Center of Regenerative Medicine and Stem Cell Research at UCLA, 2020–2021
Rose Hill foundation
Principal Investigator, $150,000 (total $250,000)
Title: Development of RNA-aptamers for live cell imaging in embryonic stem cells

• National Science Foundation - UK BBSRC 2020–2023
Principal Investigator, $720,000
Title: Characterizing efficiency and limitations of RNA regulators
to achieve robust dynamic behaviors

• Department of Energy 2019–2022
Principal Investigator, $711,000
Title: Programmable dynamic self-assembly of DNA nanostructures (Renewal)

• DARPA 2016–2018
Co-Principal Investigator, $376,000 (total $2.198M)
Title: Achieving closed-loop RNA-based PID Control with a cell-free testbed
Collaborative project, PI is Vincent Noireaux at University of Minnesota

• Department of Energy 2016–2019
Principal Investigator, $595,000
Title: Programmable dynamic self-assembly of DNA nanostructures (Renewal)

• National Science Foundation (CAREER) 2015–2021
Principal Investigator, $500,000
Title: Programming dynamic growth and reconfiguration in nucleic
acid nanomaterials

• Department of Energy 2013–2016
Principal Investigator, $411,000
Title: Programmable dynamic self-assembly of DNA nanostructures
Collaborative project, co-PI at Johns Hopkins: Rebecca Schulman

• National Science Foundation 2013–2017
Principal Investigator, $350,000
Title: Design and synthesis of robust and tunable nucleic acid-based
oscillators for bionanotechnology

• Hellman Foundation 2013–2015
Principal Investigator, $ 30,000
Title: Development of reconfigurable nanoscale materials using nucleic acids

• Regents of the University of California 2013–2014
Principal Investigator, $8,600
Title: Dynamic self-assembly of nucleic acid nanostructures

Collaborative seed grants

• Bavaria California Technology Center 2019–2020
Co-principal Investigator, $19,800
Title: Development of responsive nucleic acid self-assembling scaffolds
in minimal artificial cells. Subsequent grant. PI in Germany: F. Simmel TUM

• AERO Institute (Palmdale, CA) 2017-2018
Principal Investigator, $11,200
Title: Wing design and navigation control for the Prandtl-M glider

- AFRL 2015–2016
  Co-principal Investigator, $5,000
  Title: Microbial Consortium Biosynthesis of Biomolecular Metamaterials
- UCR Office of research 2013–2015
  Co-principal Investigator, $8,500
  Title: Design and synthesis of DNA-Si quantum dot heterogeneous dynamic nanostructures
- Bavaria California Technology Center 2012–2013
  Co-principal Investigator, $7,500
  Title: Programming dynamic growth of nucleic acid structures
  through biochemical signaling. PI in Germany: F. Simmel TUM

Education and outreach grants

- University of California HBCU Initiative 2020-2021
  Principal Investigator, $23,200
  Title: UCLA-Howard University Summer Exchange - Engineering artificial biopolymers
Supported three undergraduate students from Howard University during Summer 2021 (virtual)

- National Science Foundation 2016–2017
  Principal Investigator, $20,000
  Title: Student travel support to attend the IEEE 2018 Conference on Decision and Control
Travel awards to 35 graduate students from US institutions

- National Science Foundation 2016–2017
  Principal Investigator, $20,000
  Title: Student travel support to attend the IEEE 2016 Conference on Decision and Control
Travel awards to 35 graduate students from US institutions

- Department of Education 2015–2018
  Co-principal Investigator, $83,000
  Title: Graduate Assistance in Areas of National Need in Mechanical Engineering

Selected Invited Presentations (selected, since 2018)

- American Control Conference, Plenary speaker, Denver, CO, 2025.
- Würzburg Life Science Seminar Series, Institute of Molecular Infection Biology, Germany, 2025.
- Gordon Research Conference: RNA nanotechnology, Invited speaker, Ventura, CA, 2025.
- Foundations of Nanoscience (FNANO), Invited speaker, Snowbird, Utah, 2025.
- Smart Condensates and Droplets Symposium, Keynote speaker, Cambridge, UK, 2024.
- LIBER symposium, Invited speaker, Aalto University, Helsinki, Finland, 2024.
- American Physical Society March Meeting, Invited speaker, Minneapolis, MN, 2024.
- Gordon Research Conference: Systems Chemistry, Invited speaker, University of Southern Maine, 2024.
- Cell mimicry: bottom-up engineering of life, Invited Speaker, Royal Society, London, 2023.
- Biological Distributed Algorithms (BDA), Invited Speaker, (virtual), 2023.
- International Synthetic Biology Workshop, Invited speaker, Darmstadt, Germany, 2023.
- UCSB Center for Control, Dynamical Systems, and Computation, 2023.
- 12th International Conference on Biomolecular Engineering, Santa Barbara, CA, Invited Speaker, 2023.
- Artificial Biology (ArtBio), Molecular Design and Cell Mimicry, iNano Aarhus University, Denmark, Invited speaker, 2023.
- 28th International Conference on DNA Computing and Molecular Programming, Albuquerque, Keynote speaker, 2022.
- NecSys (IFAC Conference on Networked Systems), Zurich, Switzerland, Keynote speaker, 2022.
- Functional DNA Nanotechnology Conference, Rome, Keynote speaker, 2022.
- Foundations of Nanoscience (FNANO), Invited speaker, 2022.
- American Physical Society March Meeting, Invited speaker, 2022.
- NSF Workshop Systems and Control Theory for Synthetic Biology, Alexandria, VA, 2021.
- School of Molecular Sciences Seminar in Chemistry, Arizona State University, 2021.
- UCLA 2021 Virtual Bruin Engineers Reunion, selected presentation (virtual), 2021.
- UC Irvine, Materials Science and Engineering Colloquium (virtual), 2021.
- Workshop on Nucleic Acids and Artificial Life, Imperial College London, Invited speaker (virtual), 2021.
- Rudolf Mössbauer Colloquium, Max Planck institute in Heidelberg (virtual), 2021.
- ChemSystemsMeet - Systems Chemistry Symposium (virtual), Invited Speaker 2021.
- Department Colloquium - BioEngineering at Rice University (virtual), October 2020.
- Department Colloquium - Chemical Engineering University of Washington (virtual), October 2020.

- CCDC ARL Synthetic Biology workshop (virtual), 2020.
- European Conference on Cell-free Synthetic Biology, Invited speaker, Munich, Germany, May 2020 (canceled).
- Functional DNA Nanotechnology, Invited speaker, Rome, Italy, June 2020 (canceled).
- 7th Annual Symposium on RNA Science and its Applications, Keynote speaker, Albany, NY, March 2020 (canceled).
- APS March meeting, Invited & tutorial speaker, Denver, CO, March 2020 (canceled).
- Foundations of Nanoscience (FNANO), Keynote speaker, Snowbird, Utah, 2019.
- ECE Department Colloquium, University of Illinois, Urbana Champaign, 2019.
- Gordon Research Conference: RNA nanotechnology, Ventura, CA, 2019.
- MCE Department Colloquium, California Institute of Technology, Pasadena, CA, 2018.
- EE Department Colloquium, University of Southern California, Los Angeles, CA, 2018.

Research advising

Postdoctoral scholars, project scientists, and staff

1. Dr. Dino Osmanovic, 2021-Present (UCLA)
2. Dr. Syed Pavel Afrose, 2023-Present (UCLA)
3. Dr. Daniela Sorrentino, 2023-Present (UCLA)
4. Dr. Anli Tang, 2020-Present (UCLA)
5. Yuna Kim, 2024-Present (UCLA)
6. Dr. Jenny Le, 2019-2022 (UCLA), now at Profluent
7. Dr. Christian Cuba Samaniego, 2019-2022 (UCLA), now Assistant Professor at Carnegie Mellon University
8. Dr. Melissa A. Klocke, 2020-2022 (UCLA).
9. Dr. Hari K. K. Subramanian, 2013-2018 (UCR), now Senior Scientist, Cleancard Inc.
10. Dr. Xun Tang, 2016-2017 (UCR), now Assistant Professor at Louisiana State University

Graduate students

Degrees in progress

1. Mahdi Dizani, Ph.D. candidate, Mechanical and Aerospace Engineering, UCLA, 2022-Present
2. Shiyi Li, Ph.D. candidate, Bioengineering, UCLA, 2022-Present
3. Heather Romero Mercieca, Ph.D. candidate, Bioengineering, UCLA, 2021-Present
4. Eiji Nakamura, Ph.D. candidate, Mechanical and Aerospace Engineering, UCLA, 2020-Present

Completed degrees

1. Siddharth Agarwal, Ph.D. Mechanical Engineering, UCLA, 2015-2021. Currently: Associate, McKinsey & Company
2. Raffaele Baggi, Ph.D. Mechanical Engineering, UCR, 2016-2020. Currently: Senior Guidance Navigation and Control Engineer, Lockheed Martin
3. Melissa Klocke, Ph.D. Mechanical Engineering, UCR, 2016-2020. Deceased.
4. Jaimie M. Stewart, Ph.D. Bioengineering, UCR, 2013-2018. Currently: Assistant Professor in Bioengineering at UCLA
5. Leopold Green (NSF GRFP), Ph.D. Bioengineering, UCR, 2012-2016. Currently: Assistant professor in Bioengineering at Purdue
6. Christian Cuba Samaniego, Ph.D. Mechanical Engineering, UCR, 2012-2017. Currently: Assistant Professor in Computational Biology at Carnegie Mellon University.
7. Vahid Mardanlou, Ph.D. Electrical Engineering, UCR, 2013-2017. Currently: Senior Applied Machine Learning Scientist at Amazon
8. Yucheng Sheng, M.S. student, Mechanical and Aerospace Engineering, UCLA, 2023-2025
9. Mihe Hong, M.S./Ph.D. student (advisor Prof. Yvonne Chen), Chemical and Biomolecular Engineering, UCLA, 2019-2023
10. Tonie Butler, M.S. Mechanical and Aerospace Engineering, UCLA, 2021-2023
11. Vivienne Gunadhi, M.S. student, Bioengineering, UCLA, 2020-2021
12. Jonathan Lloyd, M.S./B.S. Bioengineering, UCR, 2014-2016
13. John Reed, M.S. Mechanical Engineering, UCR, 2012-2013
14. Andrew Reimer, M.S. Bioengineering, UCR, 2013
15. Stewart Contreras, M.S. Mechanical Engineering, UCR, 2013

Undergraduate students

Current students at UCLA

1. Diego Dilao, Bioengineering, 2025-Present
2. Madison Yang, Molecular, Cell, and Developmental Biology, 2025-Present

3. Taneeka Anand, Biochemistry, December 2023-Present
4. Britney Castaneda Camacho, Biology, March 2024-Present
5. Brian Perlstein, Molecular and Cell Biology, March 2024-Present
6. Diana McGrory, Bioengineering, March 2024-Present
7. Kevin Wang, Bioengineering, March 2024-Present
8. Celina Yu, Molecular, Cell, and Developmental Biology, June 2024-Present

Past students at UCLA

1. Yuna Kim, Bioengineering, 2023-2024
2. Eric John Payson, Bioengineering, 2023-2024 (currently Ph.D. student at Washington University)
3. Arnav Rathi, Mechanical and Aerospace Engineering, 2020-2021
4. Sumyat Ho, Biochemistry, 2021
5. Passa Pungchai, Bioengineering, 2019-2022 (currently Ph.D. student at Rice University)
6. Katelyn Carleton, Mechanical and Aerospace Engineering, 2019-2021
7. Yuki Asahara, Chemical and Biomolecular Engineering, 2019-2020

Summer programs at UCLA

1. Saron Yoseph, Howard-UCLA exchange program (virtual), Summer 2021
2. Aria Harris, Howard-UCLA exchange program (virtual), Summer 2021
3. Sydelle Davis, Howard-UCLA exchange program (virtual), Summer 2021
4. Judith Landau, BIG program, Cal State LA, Summer 2020

Former students at UCR

1. Sonia Gomez, Bioengineering (UC Leads program), 2017-2018
2. Krishen Wadwhani, Bioengineering (NSF REU 2015), 2015-2018
3. Brenda Lopez Reyna (Norco Community College) 2015-2016
4. Kimia Yaghoubi, Neuroscience, 2014-2017
5. Claire Tran, Bioengineering, 2013-2016 (Currently Ph.D. student at UCSB)
6. Rex Lu, Mechanical Engineering, 2016 (M.S. at UCLA; currently GNC engineer at Northrop Grumman)
7. Danyia Ashhad, Bioengineering, 2012-2014
8. Sho Kitada, Biochemistry, 2014
9. Christopher Galley, BIology, 2014

Honors and Awards for Mentored Research and Teaching

- Outstanding Teaching Award, Department of Mechanical Engineering (2025)
- PhD mentoring: Eiji Nakamura, Dissertation Year Award (2025-2026).
- Finalist - Excellence in Postdoctoral Mentoring Award (2023 and 2024)
- PhD mentoring: Mahdi Dizani, Excellent Poster Award, DNA Computing and Molecular Programming Conference (2024)
- Postdoctoral mentoring: Dr. Daniela Sorrentino, Fellowship Award from Associazione Italiana per la Ricerca sul Cancro (AIRC) (2024)
- PhD mentoring: Heather Romero Mercieca, Cota Robles Fellowship, UCLA (2022)
- PhD mentoring: Raffaele Baggi, Outstanding Teaching Assistant Award, UC Riverside (2020)
- PhD mentoring: Samantha Corber, NSF GRFP, UC Riverside (2016)
- Undergraduate mentoring: Team Gold Medal (UC Riverside), Biomod International Undergraduate Competition (2014)
- Undergraduate mentoring: Claire H. Tran, First Prize Notre Dame ND Connect (2013)
- PhD mentoring: Leopold Green, NSF GRFP, UC Riverside (2013)

Professional Activities and Service

Institutional service at UCLA

- QCBio Director Search Committee (2024/2025)
- Rising to the Challenge (RTC) school wide faculty search committee (committee chair in 2023/2024; member in 2022/2023)
- MAE Faculty Search Committee (chair of standard search in 2024/2025, chair of ad hoc search in 2024/2025, member in 2019/2020)
- MAE Awards Committee (2021/2022)
- MAE Merit and Promotions Committee (2020/2021, 2023/2024)
- MAE Graduate Admissions Committee (2019/2020, 2020/2021, 2021/2022)
- Graduate Division's Faculty Review Committee for DYI and Privately Endowed Fellowships (2019)

Institutional service at UC Riverside

- Faculty Search Committee, Organic Chemistry (2017/2018)

- Commencement Faculty Marshal, Bourns College of Engineering (2016)
- Research and Economic Development: internal hiring proposals reviewer and NSF CAREER mock review panel, campus level (2015)
- Department Colloquium Organizer, Mechanical Engineering (2015/2016)
- Undergraduate Committee, Mechanical Engineering (2011/2012, 2013/2014, 2017/2018)
- Graduate Committee, Mechanical Engineering (2012/2013, 2015/2016)
- Faculty Search Committee, Mechanical Engineering (2012/2013)

IEEE Control Systems Society

- Member of the Committee selecting the Best Paper Award for the IEEE CSS Joint Technical Committee (JTC) on Systems and Synthetic Biology (SBB) / Healthcare and Medical Systems (HMC) (2025).
- Chair of the Committee selecting the Best Student Paper Award at the American Control Conference (2024)
- Member of the Committee selecting the Road2CDC MS Thesis Prize, CSS Italy Chapter (2024).
- Chair of the Committee selecting the Best Student Paper Award at the IEEE Conference on Decision and Control (2021, 2022)
- Board of Governors 2020-2023, elected member
- Chair of CSS Student Activities Committee (2018-2019)
- Board of Governors 2016, appointed member
- IEEE CSS Technical Committees: Systems and Synthetic Biology (2012-present), Control Education (2012-present)
- IEEE Senior member (2018-present)

Editorial experience

- Associate Editor: IEEE Control Systems Letters (2018-2022)
- Associate Editor: Springer Encyclopedia of Systems and Control, “Biosystems and Control” section (2018-2019)
- Editorial board: Synthetic Biology, Oxford University Press (2017-present).
- Program commitee, 17^{th} International Conference on Computational Methods in Systems Biology, 2019.
- Program committee, Conference on DNA Computing and Molecular Programming (2013, 2015, 2016, 2017,2018).
- Associate Editor for invited papers, American Control Conference 2019
- Associate Editor for invited papers IEEE MSC/CCA 2016
- International Program Committee and Associate Editor, Mediterranean Conference on Control and Automation 2014
- Associate Editor for invited papers IEEE Conference on Decision and Control 2013

Reviewing

Grants and fellowship programs

- US National Science Foundation - CMMI (2014, 2024 BRITE program), DMR (2013, 2014, 2015, 2023 CAREER), CCF (2016, 2017, 2018)
- National Institutes of Health - CMT (2025, 2020), K99 (2024 2x)
- US Department of Energy - Biomolecular materials program, ad hoc reviewer for Early Career Awards (2017) and Standard grants (2017, 2019, 2021, 2022, 2023, 2024).
- Arnold O. Beckman Postdoctoral Fellowship in Chemical Sciences (2019/2020, 2020/2021, 2021/2022)
- European Research Council Starting and Consolidator Grant, ad hoc reviewer (2020, 2021, 2022, 2025).
- Swiss National Science Foundation (2024)
- Israel Science Foundation (2024)
- ERASynBio (2014, 2015)
- DAAD scholarship, German Academic Exchange Program (2016)

Journals

- Science, Nature Chemistry, Nature Communications, Nature Nanotechnology, Nature Microbiology, Nature Materials, Nature Reviews in Chemistry, Journal of Mathematical Biology
- ACS Nano, Journal of the American Chemical Society (JACS), ACS Synthetic Biology
- Proceedings of the National Academy of the United States
- Cell Systems, iScience
- Nucleic Acids Research, Bioinformatics
- Journal of the Royal Society Interface, Nanoscale
- Journal of Theoretical Biology, Automatica
- BMC Systems Biology
- Natural Computing
- IEEE Transactions (Automatic Control; Signal Processing; Circuits and Systems; Systems, Man and Cybernetics), Control Systems Letters

Conference proceedings

- Conference on DNA Computing and Molecular Programming
- IEEE Conference on Decision and Control
- American Control Conference
- IFAC Conference
- European Control Conference

Conference, workshop, and summer course organization

- Co-chair, *2028 Gordon Research Conference: Systems Chemistry*
- Invited sessions chair at the *2024 European Control Conference*.
- Publications chair at the *2022 IEEE Conference on Decision and Control*.
- Student activities chair at the *2023 IEEE Conference on Control Technology and Applications and Control*.
- Student activities chair at the *2024 American Control Conference*.
- Program committee *2021 SysChem symposium* (virtual).
- Organizing committee *2020 Synthetic Biology: Engineering, Evolution & Design (SEED) conference* (June 22-26, 2020, San Francisco, CA, cancelled)
- Program co-chair, *IEEE Mediterranean Conference on Control and Automation* (MED), 2021
- Student activities chair, *IEEE Conference on Decision and Control* 2020 (virtual)
- Organizing committee *2019 Cell Free Systems Conference*
- Co-organizer *2017, 2018, 2019, and 2020 Summer Course on Synthetic Biology, Cold Spring Harbor Laboratory, NY.*
  Two-week immersive summer course on synthetic biology combining experiments and modeling. Teaching computational biology module focused on using ordinary differential equations to model gene expression.
- Student activities chair, *2018 IEEE Conference on Decision and Control*
- Local arrangements co-chair *2016 IEEE Conference on Decision and Control*
- Local arrangements chair *2014 IEEE Conference on Decision and Control*
- Co-organizer of Tutorial session: “Synthetic Biology: from design to applications”. *2017 IEEE Conference on Decision and Control*
- Co-organizer of Invited session: “Biological feedback systems: analysis and synthesis”. *2017 IEEE Conference on Decision and Control*
- Organizer of special session: “Design and analysis of biological networks”. *2015 American Control Conference*
- Co-organizer of invited session: “Robustness and Adaptation in Biological Networks”. *2012 IEEE Conference on Decision and Control*
- Co-organizer of workshop: “Identification, analysis and design of biological networks”. *2012 IEEE Conference on Decision and Control*
- Co-organizer of invited session: “Control Theory and Biology - Applications and Experimental Approaches”. *2010 IEEE Conference on Decision and Control*