ALEXANDER MICHAEL PETERSEN

Associate Professor
[Management of Complex Systems Department](#)
[Ernest and Julio Gallo Management Program](#)
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Heritage: Naturalized U.S. Citizen, Hispanic (Born: Bogota, Colombia, 1981); **Languages:** English (native), Spanish (conversational), Italian (basic); **Computing:** C++, Mathematica, Python, STATA, Gephi, UNIX, LaTeX, HTML/CSS

EDUCATION

Boston University
Department of Physics: Ph.D. 2011, M.S. 2008
[Applications of Statistical Physics to the Social and Economic Sciences](#)
Dissertation Advisor: Prof. H. Eugene Stanley (1st reader)

University of Utah
B. Sc. 2003, Mathematics, Applied Physics (double major)

PROFESSIONAL EXPERIENCE

Associate Professor (with tenure) – *University of California, Merced*   2021 - present

Assistant Professor (TT) – *University of California, Merced*   2016 - 2021

Assistant Professor (TT) – Laboratory for the Analysis of Complex Economic Systems
IMT Lucca School for Advanced Studies, Lucca, Italy   2011 - 2016

Visiting Researcher — Department of Economics
Pontificia Universidad Javeriana, Bogota Colombia   Oct.-Dec. 2015

1— RESEARCH

GRANTS, CONTRACTS & AWARDS

UC Merced
Co-PI: **UC Merced** *Senate Research Award ($40,000 total)*:
        2017 w/ L. Westerling; 2022 w/ J. Jenkins; 2024 w/ T. Lempiala.
Co-PI: **National Science Foundation** (#1738163) *[EAGER From Genomics to Brain Sciences: What Makes Researchers Tick in Transdisciplinary Initiatives](#),* 2017-2018. *$60,408, with Prof. Pavlidis (U. Houston);* funded by the Science of Science & Innovation Policy (SciSIP) program.
PI: **Hellman Faculty Fellows Fund** 2019 UC Merced Hellman Faculty Fellows Award. $25,000.

GRADUATE STUDENT RESEARCHERS

UC Merced
Dr. Andrea del Pilar Montaño Ramirez: PhD 2026 (principal advisor)
Dr. Felber Arroyave Bermudez: PhD 2023, Environmental Systems (co-advised w. Prof. Jenkins)
IMT Lucca
Dr. Omar A. Doria Arrieta: PhD 2017, *Economics-Markets-Institutions* (co-advisor w. Prof. Pammolli)
Dr. Paulo Sgrignoli: PhD 2014, *Economics-Markets-Institutions* (co-advisor w. Prof. Pammolli)

JOURNAL TYPE	JOURNAL (IMPACT FACTOR)	PUBS.	AS 1ST / CORR. AUTHOR	PUBS. SINCE PHD (2012-)	AS 1ST / CORR. AUTHOR (2012-)	PUBS. SINCE UCM (2016-)	AS 1ST / CORR. AUTHOR (2016-)
Management /Economics	Research Policy (7.2), J. Env. Management (8.7), Nature Humanities & Social Sciences Comm. (3.7), Research Evaluation (3.3), Applied Econ. Lettt. (1.6)	10	9	10	9	8	8
Multi-Disc./ Hi-Impact	Science (57), Nat. Comm. (17), Science Advances (14), Proc. Nat. Acad. Sci./PNAS (11), PNAS Nexus (3.8)	12	8	9	7	5	4
Multi-D/ Other	Scientific Reports (4.6), Journal of the Royal Society Interface (3.9)	6	6	5	5	2	2
Information Science	Quantitative Science Studies (4.1), J.Informetrics (3.4), EPJ Data Science (3.6), Frontiers in Research Metrics & Analytics (1.6)	8	6	8	6	5	4
Physics / Complex Systems	Nature Physics (20), Chaos Solitons & Fractals (8), Physics Today (3.5), Phys. Rev. E (2.4), J. Stat. Mech (1.6), Europhysics Letters (1.8), EPJ B (1.6), Advances in Complex Systems (1.2), Applied Network Science (2.2), PLOS Complex Systems (NA)	18	13	9	7	7	7
Other	Sci. & Eng. Ethics (3.7), Social Science Information (1.1), American Scientist (0.7) Annals Amer. Assoc. Geographers (3.9), Communications Psychology (NA), Land (3.2)	6	1	6	1	5	0
Total	29 journals	60	43	47	35	32	25

PUBLICATIONS

*(underlined author's were supervised graduate student or postdoc when they contributed to the indicated publication; * indicates AMP as corresponding author)*

Peer-reviewed research:

1. **A. M. Petersen***, F. Arroyave, S. Shackelton, J. Jenkins. Increasing digital media visibility and tourism messaging promote US National Park system integration. PNAS Nexus 5, pgag028 (2026).
2. A. Montaño Ramirez, **A. M. Petersen***. Transformation of Global Science core-periphery structure towards a multi-polar horizon: The Rise of China and the Global South from 1980- 2020. Research Policy 55, 105370 (2026).
3. **A. M. Petersen***. Institutional prestige, geographic embedding and competitiveness: A comparative analysis of research ecosystems in California and Texas. Nature Humanities and Social Sciences Communications (2026).
4. **A. M. Petersen***, A. Montaño Ramirez. Research university assortativity conditions the integration of regional innovation systems. PLOS Complex Systems 3, e0000088 (2026).
5. **A. M. Petersen***. University digital media co-occurrence networks reveal structure and dynamics of brand visibility in the attention economy. Nature Humanities and Social Sciences Communications 12, 117 (2025).
6. **A. M. Petersen***, F. Arroyave, F. Pammolli. The disruption index suffers from citation inflation: re-analysis of temporal CD trend and relationship with team size reveal discrepancies. J. Informetrics 19, 101605 (2025).
7. J. Jenkins, T. Young, **A. M. Petersen**, F. Arroyave, M. Medina-Chavvaria. Climate Influences on Day and Overnight Use at California State Beaches and Coastal Parks. Land 14, 324 (2025).
8. **A. M. Petersen***, F. Arroyave, F. Pammolli. The disruption index is biased by citation inflation. Quantitative Science Studies 5, 936-953 (2024).
9. V. Zhukov, **A. M. Petersen**, D. Dukes, D. Sander, P. Tsiamyrtzis, I. Pavlidis. Science Convergence in Affective Research Is Associated With Impactful Multidisciplinary Appeal Rather Than Multidisciplinary Content. Communications Psychology 2, 83 (2024).
10. **A. M. Petersen***. Shift in house price estimates during COVID-19 reveals effect of crisis on collective speculation. EPJ Data Science 13, 47 (2024).

11. **A. M. Petersen***. How Much Did Pandemic Uncertainty Affect Real-Estate Speculation? Evidence from On-Market Valuation of For-Sale Versus Rental Properties. Applied Economics Letters 32, 1295-1299 (2024).

12. F. Arroyave, J. Jenkins, S. Shackelton, B. Jackson, **A. M. Petersen***. Research alignment in the U.S. National Park System: Impact of transformative science policy on the supply and demand for scientific knowledge for protected area management. J. Environmental Mgmt. 357, 120699 (2024).

13. F. Arroyave, J. Jenkins, **A. M. Petersen**. Network embedding for understanding the National Park System through the lenses of news media, scientific communication and biogeography. Annals of the American Association of Geographers 114, 1795-1804 (2024).

14. **A. M. Petersen***, F. Arroyave, I. Pavlidis. Methods for measuring social and conceptual dimensions of Convergence Science. Research Evaluation 32, 256-272 (2023).

15. D. Yang, I. Pavlidis, **A. M. Petersen***. Biomedical convergence facilitated by the emergence of technological and informatic capabilities. Advances in Complex Systems 26, 2350003 (2023).

16. I. Pavlidis, E. Akleman, **A. M. Petersen**. From Polymaths to Cyborgs – Convergence Is Relentless. American Scientist 110 (July/August issue), 196-200 (2022)

17. **A. M. Petersen***. Evolution of biomedical innovation quantified via billions of distinct article-level MeSH keyword combinations. Advances in Complex Systems 25, 2150016 (2022).

18. F. Arroyave, O. Y. Romero Goyeneche, M. Gore, G. Heimeriks, J. Jenkins, **A. M. Petersen***. On the social and cognitive dimensions of wicked environmental problems characterized by conceptual and solution uncertainty. Advances in Complex Systems 24, 215005 (2021).

19. **A. M. Petersen***, M. Ahmed, I. Pavlidis. Grand Challenges and Emergent Modes of Convergence Science. Nature Humanities and Social Sciences Communications 8, 194 (2021).

20. F. Arroyave, **A. M. Petersen***, J. Jenkins, R. G. Hurtado. Multiplex networks reveal geographic constraints on illicit wildlife trafficking. Applied Network Science 5, 20 (2020).

21. **A. M. Petersen***, O. Penner. Renormalizing individual performance metrics for cultural heritage management of sports records. Chaos, Solitons & Fractals 136, 109821 (2020).

22. D. Majeti, E. Akleman, M. E. Ahmed, **A. M. Petersen**, B. Uzzi, I. Pavlidis. Scholar Plot: Design and Evaluation of an Information Interface for Faculty Research Performance. Frontiers in Research Metrics and Analytics 4, 6 (2020).

23. **A. M. Petersen***. Megajournal mismanagement: Manuscript decision bias and anomalous editor activity at PLOS ONE. J. Informetrics 13, 100974 (2019).

24. **A. M. Petersen***, E. Vincent, A. L. Westerling. Discrepancy in scientific authority and media visibility of climate change scientists and contrarians. Nature Communications 10, 3502 (2019).
    1. Top 5% all-time Altmetric Score

25. **A. M. Petersen***, R. K. Pan, F. Pammolli, S. Fortunato. Methods to account for citation inflation in research evaluation. In Press, Research Policy (2019).

26. **A. M. Petersen***. Multiscale impact of researcher mobility. Journal of the Royal Society Interface 15, 20180580 (2018).

27. R. K. Pan, **A. M. Petersen*** (co-first author), F. Pammolli, S. Fortunato. The Memory of Science: Inflation, Myopia, and the Knowledge Network. J. Informatics 12, 656-678 (2018).

28. **A. M. Petersen***, D. Majeti, K. Kwon, M. Ahmed, I. Pavlidis. Cross-disciplinary evolution of the genomics revolution. Science Advances 3, eaat4211 (2018).

29. S. Fortunato, C. T. Bergsrom, K. Borner, J. A. Evans, D. Helbing, S. Milojevic, **A. M. Petersen**, F. Radicchi, R. Sinatra, B. Uzzi, A. Vespignani, L. Waltman, D. Wang., A.-L. Barabasi. Science of Science. Science 359, eaao0185 (2018).

30. **A. M. Petersen***, M. Puliga. High-skilled labour mobility in Europe before and after the 2004 enlargement. Journal of the Royal Society Interface 14, 20170030 (2017). **Cover of April Issue**

31. O. Doria Arrieta, F. Pammolli, **A. M. Petersen*** (co-first author). Quantifying the negative impact of brain-drain on the integration of European science. Science Advances 3, e1602232 (2017).

32. L. Leydesdorff, **A. M. Petersen**, I. Ivanova. Self-organization of meaning and the reflexive communication of information. Social Science Information, 56(1), 4-27 (2017).

33. **A. M. Petersen**, D. Rotolo, L. Leydesdorff. A Triple Helix Model of Medical Innovation: Supply, Demand, and Technological Capabilities in terms of Medical Subject Headings. Research Policy 45(3), 666-681 (2016).

34. **A. M. Petersen***. [Quantifying the impact of weak, strong, and super ties in scientific careers.](#) Proceedings of the National Academy of Sciences USA 112, E4671-E4680 (2015).
35. A. Morescalchi, F. Pammolli, O. Penner, **A. M. Petersen**, M. Riccaboni. [The evolution of networks of innovators within and accross borders: Evidence from patent data](#). Research Policy 44(3), 651-668 (2015).
36. **A. M. Petersen*,** O. Penner. [Inequality and cumulative advantage in science careers: a case study of high-impact journals](#). EPJ Data Science 3, 24 (2014).
37. I. Pavlidis, **A. M. Petersen**, I. Semendeferi. [Together we stand.](#) Nature Physics 10, 700-702 (2014).
38. C. Schulz, A. Mazloumian, **A. M. Petersen**, O. Penner, D. Helbing. [Exploiting citation networks for large-scale name disambiguation](#). EPJ Data Science 3, 11 (2014).
39. **A. M. Petersen***, S. Fortunato, R. K. Pan, K. Kaski, O. Penner, A. Rungi, M. Riccaboni, H. E. Stanley, F. Pammolli. [Reputation and impact in academic careers.](#) Proceedings of the National Academy of Sciences USA 111, 15316-15321(2014).
40. **A. M. Petersen***, I. Pavlidis, I. Semendeferi. [A quantitative perspective on ethics in large team science.](#) Sci. & Eng. Ethics 20, 923-945 (2014).
41. O. Penner, R. K. Pan, **A. M. Petersen***, K. Kaski, S. Fortunato. [On the predictability of future impact in science.](#) Scientific Reports 3, 3052 (2013).
42. **A. M. Petersen***, S. Succi. [The Z-index: A geometric representation of productivity and impact which accounts for information in the entire rank-citation profile.](#) J. Informetrics 7, 823-832 (2013).
43. O. Penner, **A. M. Petersen**, R. K. Pan, S. Fortunato. [The case for caution in predicting scientists' future impact.](#) Physics Today 66, 8 (2013).
44. A. Chessa, A. Morescalchi, F. Pammolli, O. Penner, **A. M. Petersen**, M. Riccaboni. [Is Europe evolving toward an integrated research area?](#) Science 339, 650 (2013).
45. **A. M. Petersen***, J. Tenenbaum, S. Havlin, H. E. Stanley, M. Perc. [Languages cool as they expand: Allometric scaling and the decreasing need for new words.](#) Scientific Reports 2, 943 (2012).
46. **A. M. Petersen***, M. Riccaboni, H. E. Stanley, F. Pammolli. [Persistence and Uncertainty in the Academic Career.](#) Proceedings of the National Academy of Sciences USA 109, 5213 (2012).
47. **A. M. Petersen***, J. Tenenbaum, S. Havlin, H. E. Stanley. [Statistical Laws Governing Fluctuations in Word Use from Word Birth to Word Death](#). Scientific Reports 2, 313 (2012).
48. **A. M. Petersen***, H. E. Stanley, S. Succi. [Statistical regularities in the rank-citation profile of scientists](#). Scientific Reports 1, 181 (2011).
49. **A. M. Petersen***, W-S. Jung, J-S. Yang, H. E. Stanley. [Quantitative and Empirical demonstration of the Matthew Effect in a study of Career Longevity](#). Proceedings of the National Academy of Sciences USA 108, 18 (2011).
50. **A. M. Petersen***, O. Penner, H. E. Stanley. [Methods for detrending success metrics to account for inflationary and deflationary factors](#). Eur. Phys. J. B. 79, 67 (2011).
51. B. Podobnik, D. Horvatic, **A. M. Petersen**, B. Urosevic, H. E. Stanley. [Bankruptcy Risk Model and Empirical Tests](#). Proceedings of the National Academy of Sciences USA 107, 18325 (2010).
52. **A. M. Petersen***, F. Wang, S. Havlin, H. E. Stanley. [Market dynamics immediately before and after financial shocks: Quantifying the Omori, productivity and Bath laws](#). Phys. Rev. E 82, 036114 (2010).
53. B. Podobnik, D. Horvatic, **A. M. Petersen**, M. Njavro, H. E. Stanley. [Common scaling behavior in finance and macroeconomics](#). Eur. Phys. J. B 76, 487 (2010).
54. **A. M. Petersen***, B. Podobnik, D. Horvatic, H. E. Stanley. [Scale-invariant properties of public-debt growth](#). Europhysics Letters 90, 38006 (2010).
55. **A. M. Petersen***, F. Wang, H. E. Stanley. [Methods for measuring the citations and productivity of scientists across time and discipline](#). Physical Review E 81, 036114 (2010).
56. **A. M. Petersen***, F. Wang, S. Havlin, H. E. Stanley. [Quantitative law describing market dynamics before and after interest-rate change](#). Physical Review E 81, 066121 (2010).
57. B. Podobnik, D. Horvatic, **A. M. Petersen**, H. E. Stanley. [Cross-Correlations between Volume Change and Price Change](#). Proceedings of the National Academy of Sciences USA 106, 22079 (2009).
58. B. Podobnik, D. Horvatic, **A. M. Petersen**, H. E. Stanley. [Quantitative relations between risk, return and firm size](#). Europhysics Letters 85, 50003 (2009).

59. **A. M. Petersen***, W-S. Jung, H. E. Stanley. On the distribution of career longevity and the evolution of home run prowess in professional baseball. Europhysics Letters 83, 50010 (2008).

60. M. Mobilia, **A. Petersen**, S. Redner. On the Role of Zealotry in the Voter Model. *J. Stat. Mech.* 08, P08029 (2007).

Published Datasets & Other Work:

1. **A. M. Petersen**. University ecosystem analytics: Case study of regional integration and competitiveness in CA and TX. Dryad dataset, 2024.

2. **A. M. Petersen**. Digital media visibility of US National Parks. Dryad dataset, 2024.

3. **A. M. Petersen**. The disruption index suffers from citation inflation and is confounded by shifts in scholarly citation practice: synthetic citation networks for bibliometric null models. Dryad dataset, 2023.

4. **A. M. Petersen**. Zillow property-level data panel for select California cities - before and after 2020. Dryad dataset, 2023.

5. L. Verginer, G. Vaccario, **A. M. Petersen**. Foreword to the Special Issue on Success in Science. Advances in Complex Systems 24, 2102001 (2021).

6. **A. M. Petersen**. Juxtaposition of climate change contrarians and scientists in the media using Media Cloud data. UC DASH published dataset, 2019.

7. **A. M. Petersen**. Large dataset of disambiguated publication profiles for studying researcher mobility. UC DASH published dataset, 2018.

8. I. Pavlidis, **A. M. Petersen**, D. Akleman, M. E. Ahmed. Cross-disciplinary Evolution of the Genomics Revolution. Open Science Framework published dataset, 2018.

9. **A. M. Petersen**. PLOS ONE publication and citation data. UC DASH published dataset, 2018.

10. **A. M. Petersen**. European high-skilled mobility data and Scientific publication & collaboration data, Collection. UC DASH published dataset, 2018.

2 — TEACHING

UC Merced

DSA 002 — Thinking like a programmer (Undergraduate, developed by Russ McBride & AMP)

Provides a basic introduction to classic logic principles as well as an introduction to basic structures that underly computer programming. Provides the subset of critical thinking skills that apply to computer programming, providing an excellent foundation for further work in programming, data analysis, or technical management. 4 credits. Annually, Fall 2024.

MIST 060 / DSA 001 — Introductory Data Analytics (Undergraduate, developed by AMP)

Introduces the data-for-decision-making paradigm through the lens of the Wolfram computing suite – comprised of WolframAlpha, the Mathematica language, and computable notebooks. Lectures introduce methods and best practices of data collection, integration and visualization, together reinforced via team exercises drawing on real-world domains. To facilitate explorative autodidactic learning, students will learn how to self-instruct new coding skills by using Mathematica Document Center 'help pages' in conjunction with myriad open coding demonstrations. 4 credits. Annually, Fall 2021-present.

MIST 134 — Methods of Data & Network Science (Undergraduate, developed by AMP)

Explores methods to efficiently manage and analyze large complex datasets. The computer lab will introduce the Python programming language with a focus on extracting data from websites, exploring,

and inquiry-oriented analyses and visualizations. Introduction to network science theory useful in understanding and managing complex socio-technological systems. 4 credits. Spring 2019

MIST 135 — Technical Communication & Visualization Skills (Undergraduate, dev. by AMP)

Theory of effective communication in quantitative contexts drawing on various presentation modes – written, oral, graphical, powerpoint, poster. Seminars on theory and best-practices combined with individual and team project presentations. Opportunity to improve inquiry-oriented communication skills, to give and receive constructive feedback, and to learn graphical methods for developing striking visualizations. 4 credits. Fall 2019.

MIST 203 — Quantitative Tools for Management (Graduate, developed by AMP)

This course will prepare students for qualitative, quantitative and data-oriented reasoning for complex decision- making scenarios. In qualitative scenarios, when quantitative information and data are sparse, reasoning draws on careful thought experiments. When the problem has a measurable component that nevertheless lacks data, insights and direction can still be obtained from *back-of-the-napkin* estimations that also require an assessment of error propagation. In the digital era, the increasing availability of data for decision-making clarifies some aspects of problem solving, but there are still statistical pitfalls that should be addressed and overcome using careful analysis design. To this end, this class will largely focus on identifying best practices for collecting, processing, visualizing, and communicating data-driven analysis strategies. 4 credits. Annually, Fall 2018-2024.

MIST 270 — Data Science (Graduate, developed by AMP)

Introduces the data analytics pipeline relevant to graduate research work: obtaining raw unstructured data; cleaning, organizing, merging and identifying potential pitfalls in the data; exploring and visualizing the underlying statistics; introduction to preliminary stochastic, generative and econometric modeling methods. Lectures introduce best-practices for handling and analyzing large multi-scale datasets using examples drawn from open-data repositories. Students expected to have a relevant research dataset in mind prior to enrollment. 4 credits. Fall 2021.

SPARK — Science of Science (Undergraduate, developed by AMP)

Introduces students to life at a research university. Students focus on the nature of inquiry by exploring a particular topic over the course of the semester, approaching it from multiple perspectives and possibly multiple disciplines. Students learn how to generate research questions, engage with campus and/or local resources, and think critically. Students synthesize and present their ideas in writing and other forms of communication (visual, oral, and/or numerical). 4 cred. Spring 2019, 22, 23

COGS 180 — Visualization & Presentation (Undergraduate, developed by AMP)

Theory of effective communication in quantitative contexts drawing on various presentation modes – written, oral, graphical, powerpoint, poster. Seminars on theory and best-practices combined with individual and team project presentations. Opportunity to improve communication skills, to give and receive constructive feedback, and to learn graphical methods for developing striking visualizations. 4 credits. Fall 2016, Spring 2017, Spring 2018.

ENG 097 — Engineering Service Learning (Undergraduate)

1 credit. Fall 2018 — Faculty advisor for the "Sustainable Sites" team.

Faculty Institute on Designing Resilient Online Instruction — 2020, Certificate of Participation

IMT Lucca (Graduate short courses)

Mathematics Pre-course

An introduction advanced mathematical tools including theory of complex variables, Fourier transform, Legendre transform, ordinary differential equations, partial differential equations. Spring 2012/2013, Fall 2013, Fall 2014

Data analytics and visualization
Introductory data science course for the for the Economics and Management Science track. Spring 2016.

3 — SERVICE

PROFESSIONAL ACTIVITIES

University Service - UC Merced   ([Weblist](#))

Primary
Program Development
• Management of Complex Systems Department, UC Merced — founding faculty member involved with initial program development and faculty recruitment (2016-2017).
    • Undergraduate program chair: AY 24-25.
• Gallo School of Management development team — Executive Committee member (AY 20-21; 21-22); Gallo School proposal — contributed text, data analysis, graphical visualization (Fall 2019).
Educational Development
• Bachelors in [Data Science & Analytics](#) — proposal lead. Launched Fall 2024.
• Bachelorsin [Management of Innovation, Sustainability and Technology (MIST)](#) — proposal lead. Launching Fall 2025.
• Masters in Data Science and Analytics — proposal development committee member, 2020-22. Pending decision.
Senate Committees
• Undergraduate Council (UGC), AY 22-23; 23-24. Senate committee; member. Curriculum Review Sub-committee: member (22-23); chair 23-24.
    • Lead reviewer for 5 new undergraduate majors and one new minor.
• Committee on Rules and Elections (CRE), AY 24-25. Senate committee; member.
Other Committees
• UCM School of Engineering, Executive Committee. Chair (AY 23-24); member (AY 19-20).
• UCM Temporary Academic Support (TAS) Budget Work Group (Spring 24). Co-Chair.

Other
• Environmental Systems graduate group Education Policy Committee (Fall 2020 - Fall 2022)
• HackMerced faculty advisor (2019-present)
• Qualifying Exam committee: F. Arroyave (ES program, co-advisor); A. Boroomand (QSB program, member); Cody Moser (Cog. Sci. Program, member), A. Montano Ramirez (MCS, principal advisor).
• Student Success Intern mentor (2020)
• Thesis Defense Exam committee: F. Arroyave (ES program, co-advisor, 2023); A. Boroomand (QSB program, member, 2023); Cody Moser (Cog. Sci. Program, member, 2025).
• CCGA — Ad hoc review of UC Irvine proposal to establish Master of Data Science program
• Web development & Maintenance of the [UCM MIST/MCS](#) dept. and program website, 2017-2021. 2024-present (built [datascience.ucmerced.edu](#) and [DSA.ucmerced.edu](#) and rebuilt [MIST.ucmerced.edu](#)).

• Department of Management of Complex Systems TT Faculty Search Committee: 2016 (2x), 2018 (1x)
• [National Parks Institute](#), UC Merced center. Member since the 2017 launch.
• Organization committee for UCM ["Innovation and Entrepreneurship Symposium"](#) 2018

Society and External Dissertation Committees

• Program committee for Atlanta Conference on Science and Innovation Policy. 2025
• Program committee for COOL2014: Connecting Online & Offline Life
• Program committee for the International Conference on Computational Social Science (IC2S2) 2015, 2016, 2018, 2019, 2020, 2021.
• Program committee for the SocInfo conference: 2016, 2017.
• Program committee for the NetSci/NetSciX conference: 2017, 2018.
• Program committee for Websci: 2020
• Pre-examiner/Reader for Dr. Pietro della Briotta Parolo PhD Thesis, Department of Biomedical Engineering and Computational Science, Aalto University. 2017

Professional Association Memberships

• Complex Systems Society, 2018-
• American Physical Society, 2010-2015
• Italian Managing Committee (MC) Substitute Member for European Union COST Action TD1210 "KnowEscape", 2013-2015.

University Service – IMT Lucca

• Selection committee member for IMT 2012 junior faculty recruitment program for the position of Assistant Professor in Statistical Physics.
• Selection committee member for IMT class of incoming Economics students: 2012, 2013, 2014, 2016.

University Service – Boston University

• Represented Boston University Physics Dept. as departmental recruiter at the Joint Annual Conference of the National Society of Black Physicists (NSBP) and the National Society of Hispanic Physicists (NSHP). Spring 2008, Spring 2009.

Editor Service

• Associate Editor, Advances in Complex Systems (Wiley publishing). 2019-present.
• Associate Editor, PLOS Complex Systems (PLOS publishing). 2023-present.

Ad Hoc Reviewer - Manuscripts

Publons verified reviewer (profile link): "Top peer reviewer" - 148 verified reviews for following journals:

Science, Science Advances, Nature, Nature Physics, Nature Human Behaviour, Nature Communications, Proceedings of the National Academy of Sciences USA, Research Policy, Physical Review Letters, Journal of the Royal Society Interface, J. Informetrics, Service Science, Europhysics Letters (named a 2011 distinguished referee), Physica A (named a 2013 distinguished referee), Journal of Statistical Mechanics, PLOS ONE, Scientific Reports, Journal of the American Society for Information Science and Technology (JASIST), European Physics J. B (EPJB), European Physics J. Data Science (EPJDS), Royal Society Open Science, Knowledge and Information Systems, European Sociological Review, Industry & Innovation, "Chaos, Solitons, and Fractals", Scientometrics, International Journal of Climatology, BMC Biology, Bioscience, Big Data & Society, Technology in Society, PNAS Nexus.

Ad Hoc Reviewer - Grants & Awards

Grants
• National Science Foundation (NSF) proposal review
• EU COST open call transdomain proposal on "big data"
• Austrian Science Fund (FWF) research project grant proposal review

Other Awards

- UC Merced Graduate STEM/SCE Fellowship Review (2018)
- UC Merced Graduate Recruitment Fellowships Review (2022)
- UC Merced Graduate Continuing Fellowships Review (2019, 2020, 2021, 2022)
- UC Merced Hellman Fellow Review (2020, 2021, 2022)

Public and Professional Service

Merced / UC Merced

- Merced S.T.E.A.M. TK-8 Education Center: opening presentation to ~ 40 elementary school students. 2018 (4x); 2019 (2x).
- Student Success Intern (SSI) advisor: 2020
- UCM FiatLUX participant: 2018, 2019
- Organization committee and Judge for the "Computer Science for Me" (CS4Me) Saturday Hackathon, a NSF CAHSI project aimed at attracting/guiding UR minorities into computer science (2018, 2019).
- Organization committee/financial support for "EcoHacks", a 1-day hackathon at UC Merced (in conjunction with Eng. Service Learning and UCM ACM)
- Hackathon Prize Judge: EcoHacks (2018), HackMerced (2019, 2020)
- School of Engineering Innovate2Grow capstone presentation. Judge: Fall 2018, Spring 2019; Moderator: Spring 2022, Fall 2022.
- Graduation: Volunteer Ceremony Usher (2019)
- Yosemite Facelift Volunteer: Fall 2018.

Other community

- Member of the Comunita Sant'Egidio community outreach group in Lucca, serving meals to the needy
- Member of the Park St. Church Homeless Outreach Group. Group member February 2007- April 2011; group co-leader July 2010 - March 2011

UNDERGRADUATE MENTORING

UC Merced

- Dong Sen "Ricky" Yan, Applied Math undergrad: 2018 - informal research project supervision
- Austin Cooksey, Cog.Sci. undergrad: Summer/Fall 2018, Research Asst.
- Engineering Capstone Team faculty advisor: MOG (Gallo Wine), Spring 2018
- Engineering Service Learning faculty advisor: Sustainable Sites, Fall 2018
- Faculty mentor, Student Success Internship program (2019)

4 — OTHER

Presentations: Conferences, Workshops, Panels

- American Physical Society (APS 2009) 2009 Annual Meeting, Pittsburgh PA, USA. "Statistical laws for career longevity," 03/18/2009. (Featured Talk/Paper).
- American Physical Society (APS 2011) 2011 Annual Meeting, Dallas TX, USA. "Statistical regularities in the rank-citation profile of scientists," 03/2011.
- International Conference of Econophysics (ICE 2011) 2011, Shanghai, China. "Quantitative law describing market dynamics before and after interest-rate change," 06/2011.
- International Conference on Statistical Physics (Sigma Phi 2011) 2011, Larnaca, Cyprus. "Quantifying Career Growth and Career Longevity in Academia," 07/2011.
- The "Unexpected" Conference on Sociophysics: Do humans behave like atoms?, ENSTA/CREA, Paris. "An atomic perspective on careers," 11/2011.
- MIT Sloan Sports Analytics Conference, "A method for the unbiased comparison of MLB and NBA career statistics across era." 03/2012. (paper with O. Penner via link)

- American Physical Society (APS 2012) 2012 Annual Meeting, Boston MA, USA. "Persistency and Uncertainty Across the Academic career," 2/29/12. (Featured Talk/Paper).
- American Physical Society (APS 2012) 2012 Annual Meeting, Boston MA, USA. "The Growth Dynamics of Words: How Historical Context Shapes the Competitive Linguistic Environment," 2/28/12. (Featured Talk/Paper, presented by coauthor J. Tenenbaum).
- The Organization, Economics and Policy of Scientific Research, "When the Hunter becomes the Hunted: the science of scientific careers." Collegio Carlo Alberto, Torino IT, 5/2/2013.
- Network Science (NetSci) 2013, "Batman and Robin: understanding the role of tie-strength within superstar careers." Copenhagen DN, 06/07/2013.
- Science of Team Science (SciTS), "Batman and Robin: understanding the role of tie-strength within superstar careers." Northwestern University, IL USA, 06/25/2013.
- European Conference on Complex Systems ECCS'13, "Reputation and Impact in Academic Careers", Barcelona Spain, 09/16/2013.
- *History of Science Society HSS'13, "Being Ethical in Large-Team Science: A Quantitative Historical Perspective", Boston USA, 11/2013.*
- Network Science (NetSciX) 2015, "The Apostle Effect: Quantifying the impact of super ties in scientific careers." Rio de Janeiro Brazil, 01/16/2015.
- International Conference on Computational Social Science (IC2S2), "The Apostle Effect: Quantifying the impact of super ties in scientific careers." Helsinki Finland, 06/2015.
- Latin American Conference on Complex Networks (LANET), "The dynamics of collaboration and its implications - from careers to Europe." Puebla, MX (9/2017)
- Poster/Lightning Talk NAS Sackler Colloquium Modeling and Visualizing Science and Technology Developments, Dec. 4-5, 2017.
- UC Merced FEAST seminar: "Science of Science" for SoE administrators. May 2018.
- UC Merced NRT-Training program: year-end keynote talk. "Interdisciplinary adventures in complex systems: from statistical physics to management science" May 15, 2018
- Poster Presentation at Inaugural Data Science Institute Workshop, hosted by LLNL/UC. Aug. 7-8, 2018.
- UC Merced NRT-ICGE seminar series: "Science as a computer". October 2018
- UC Merced NRT seminar: "Computational Social Science - an opportunity for introspection". Nov. 2018
- Latin American Conference on Complex Networks (LANET), "ET Returns home: Quantifying the returns to return mobility" Cartagena, CO (9/2019).
- Metascience Symposium, "Discrepancy in scientific authority and media visibility of climate change scientists and contrarians." Prize winning poster. Stanford University, CA (9/2019).
- Atlanta Conference on Science and Innovation Policy, "When scientists cross the line". Georgia Tech, Atlanta GA (10/2019).
- International Conference on Computational Social Science (IC2S2), "When scientists cross the line". MIT, Boston MA (7/2020).
- Scientific Networks and Success, Satellite Workshop of Complex Systems Society (CSS) 2020, "Super ties" and cross-disciplinary configurations in scientific careers. Hosted by ETH Zurich, CH (12/2020).
- International Conference on the Science of Science and Innovation (ICSSI), "Grand Challenges and Emergent Modes of Convergence Science". Hosted by the US National Academy of Sciences, Washington DC (6/2022).
- Science of Team Science (SciTS), "Grand challenges and emergent modes of convergence science" Virtual Conf., 08/2022. YouTube version
- Science of Team Science (SciTS), "Alignment between Social and Conceptual dimensions of research teams conditions the impact of Convergence Science." Virtual Conf., 7/2024. YouTube version
- Atlanta Conference on Science and Innovation Policy, "Research university assortativity conditions the integration of regional innovation systems". Georgia Tech, Atlanta GA (5/2025).

Invited Talks/Seminars

- Harvard Condensed Matter Theory KIDS Seminar, Harvard University. " 'One-hit Wonders' and 'Iron-Horses': A model of Career Longevity in Professional Sports," 10/28/2008.

- Departmental Seminar, Boston University Dept. of Physics. "Quantifying the Market's Reaction to News Using Methods from Earthquake Physics," 08/31/2010.
- Departmental Seminar, Sapienza University of Rome, Dept. of Physics. "Statistical regularities in the career achievements of scientists and professional athletes," 10/08/2010.
- Science-Based Initiative Seminar, Harvard Business School. "Quantifying the statistical regularities in the career achievements of scientists and professional athletes," 01/29/2011.
- Departmental Seminar, IMT Lucca School for Advanced Study, Italy. "Quantitative laws describing market dynamics before and after interest-rate change and other financial shocks." 02/02/2011.
- Barabasi Lab group seminar, Northeastern University, Dept. of Physics. "Quantifying the statistical regularities in the career achievements of scientists and professional athletes," 02/07/2011.
- Ph. D. Final Oral Examination, Boston University, Dept. of Physics. "Applications of Statistical Physics to the Social and Economic Sciences," 03/08/2011.
- Physics and complexity in Society, KAIST Mini-workshop, Invited speaker, Pohang Korea. "An atomic perspective on careers," 2/2012.
- New Trends in e-Humanitites, weekly seminar, Royal Netherlands Academy of Arts & Sciences, Amsterdam Netherlands. "Persistence and Uncertainty in the Academic Career," 4/26/2012.
- COST Action MP0801 "Physics of competition and conflict" Scientometrics Meeting, Bulgarian Academy of Sciences, Sophia Bulgaria. "Dualities in Science: An Empirical analysis of cooperation-competition and persistence-uncertainty in the academic career," 5/21/2012.
- Departmental seminar, "A microscopic perspective on academic career growth: Empirical analysis and theoretical models." Dept. of Biomedical Engineering and Computational Science, Aalto University, Helsinki Finland. 06/13/2012.
- Sabermetrics, Scouting, and the Science of Baseball: A weekend baseball seminar and benefit for the Jimmy Fund. "Beyond the asterisk *: Adjusting for performance inflation in professional sports." Boston USA, Aug. 4-5, 2012.
- Ethics in Science Seminar, "Identifying potential pitfalls in the quantitative appraisal system for scientific careers." University of Houston. 12/03/2012.
- Helbing Lab Seminar, "Multilevel social dynamics in Science: from individual careers to Europe", ETH Zurich. 02/01/2013.
- Lorentz Center, Workshop on Econophysics and Networks across Scales, "Multilevel collaboration networks in science: from careers to Europe." Leiden, the Netherlands, 05/31/2013.
- Harvard Institute for Quantitative Social Science, Science of Success workshop, "Quantifying career success in competitive arenas: From Fenway Park to Mass. Ave." Harvard Univ., USA, 06/17/2013.
- European Conference on Complex Systems ECCS'13, Quantifying Success satellite, "Quantitative patterns of individual achievement and growth in competitive arenas", Barcelona Spain, 09/18/2013.
- COST Action TD1210 "Knowledge Orders and Science", Koninklijke Bibliotheek, The Hague, Netherlands. "Using big data to quantify the evolution of written corpora at the micro and macro scale", 10/23/2013.
- Data Science lunchtime series, "Using big data to quantify complex social processes", University of Warwick Business School, Feb. 27 2014.
- Lorentz Center Workshop on Simulating the social processes of Science, talk titled "Quantifying the role of teamwork and reputation across scientific careers." April 7-11 2014, Leiden, the Netherlands.
- Quantifying Success 2.0, "Quantifying growth trends in science: from institutions to careers", ECCS'14 satellite workshop, Sept. 24, 2014.
- "Quantifying Scientific Impact: Networks, Measures, Insights?", COST workshop hosted by ETH Zurich, Feb. 12-13, 2015.
- "Measuring, modeling, and understanding career growth in science". Scientific seminar, University of Lugano, May 5, 2015.
- "Modeling Science across multiple scales: from individuals to institutions." Weekly seminar, Dept. of Economics, Pontificia Universidad Javeriana, Bogota, Nov. 4, 2015.
- "Quantifying the negative impact of brain-drain on the integration of European science." Invited Speaker, German Physical Society (DPG) Annual Meeting, Regensburg, March 10 2016.
- "Quantifying the negative impact of brain-drain on the integration of European science." MTEI-ITPP seminar, Ecole Polytechnique Federale de Lausanne (EPFL), May 4 2016.

- International School and Conference on Network Science (NetSci) 2016, "Success factors in science: quantifying the reputation, social-tie, and press effects", Seoul, Korea, May 2016.
- UC Merced EECS Seminar, "Computational Social Science", Oct. 13, 2017
- Sacramento State Department of Physics & Astronomy Seminar, April 12, 2018.
- UC Merced NRT-Training program: year-end keynote talk. "Interdisciplinary adventures in complex systems: from statistical physics to management science" May 15, 2018
- UC Merced Department of Physics Colloquium, Nov. 1, 2019
- UC Merced Environmental Systems Seminar, Feb. 26, 2020
- Team Science Summer Seminar, "Methods for measuring social and conceptual dimensions of Convergence Science", University of Houston, 7/2023.
- National Institute of Health, NIH/NINDS Team Science Seminar Series #2: Convergence in Complex Science. Dec. 12, 2024. Full webinar video

Select Media Coverage (with links, * indicates interviewed)

How Scientific Research Can Inform Visitor and Environmental Management at National Parks, UC Merced Newsroom, Patty Guerra
Destiny of science modeled and explained in new study, Phys.org
What science can tell us about building great teams, Emily Stone - Kellogg School of Management
* Go figure: salary drives researchers to move to new countries, Nature
*Personal biases speed up research publication: Megajournal editors under the microscope, Nature Index
*Analysis of highly prolific Plos One editors finds evidence for 'editor-author backscratching' , Times Higher Education
*Editors secured citation bump, Science
*How open access extends the conversation around climate change in the era of fake news, International Open Access Week feature by Springer Nature.
U.S. Media gives too much air time to climate change deniers who don't know what they're talking about, Newsweek
*Climate Deniers Receive More Media Attention Than Climate Scientists — Research, Desmog UK
* Media Creates False Balance on Climate Science, Study Shows, University of California Media Feature
Climato-scepticisme et médias : la duperie, Le Monde
*The growth of papers is crowding out old classics, Nature Index
*Why you should move country, Nature
*Considering going abroad for work? Science
*Physicists who move abroad can receive a 17% uplift in citations, study reveals, Physics World
*Migration brings citations boost, Science
*Science of Science authors hope to spark conversations about the scientific enterprise, Phys.org
*Europe's paradox: Why increased scientific mobility has not led to more international collaborations, Science
*EU Expansion did not Increase Cross-Border Research, Study Finds, AAAS with movie highlight
*Joining the European Union leads to less cross-border collaboration, Nature
* European mobility and the potential consequences of Brexit, The Royal Society (Ruth Milne)
* Study Identifies Effects of EU Expansion on Labor, Research (Lorena Anderson, UCM)
* The EU Had a Scientific Collaboration Problem Long Before Brexit, (Motherboard)
L'allargamento dell'Unione europea alimenta la fuga dei cervelli?, Wired.it (in Italian)
*Lifetime collaborators reap the benefits, Nature
*Publishing Partners, The Scientist
*Dynamic duos in science can reap rewards of academic partnerships, Times Higher Education
*Collaboration and scientific career development, PNAS Highlight
Study suggests long term collaborations result in more productive scientific careers, Phys.org
*Recognition: Build a reputation, Nature
*The benefits of being a big name, Nature
Researchers say academia can learn from Hollywood, Phys.org
Scientists' reputations and citation rates, PNAS Highlight
Researchers prefer citing researchers of good reputation, Phys.org
Team Science Is Tied to Growth in Grants With Multiple Recipients, The Chronicle of Higher Education
Family values, Chemistry World
*Choice words: Graphing the evolution of language, arts&sciences Fall 2013 Magazine
*Divinations of academic success may be flawed, Nature
F1000 evaluation of "Statistical laws governing fluctuations in word use from word birth to word death", Faculty of 1000 post-publication peer review

*When physicists do linguistics, Boston Globe / International Herald Tribune (Feb. 10/11, 2013)
*Physicists explore the rise and fall of words, Inside Science News Service
Short-term contracts may hinder young scientists, PNAS Highlight
*The New Science of the Birth and Death of Words, Wall Street Journal (Mar. 17, 2012)
*Languages Lose Vocab to Science and Spell-Check, InnovationNewsDaily
*Digital Spell-Checking May Be Killing Off Words, LiveScience / MSNBC / Discovery.com
*Modern era brings death to words, ScienceNews
*Study reveals words' Darwinian struggle for survival, theGuardian
*Bernanke Announcement Leaves Quake Like Aftershocks , Inside Science News Service
New Statistical Method Ranks Sports Players From Different Eras, MIT Technology Review
*A Physics Curveball, arts&sciences Fall 2010 Magazine (Annual BU Research Highlight)