

Prof. Dr Claudio J. Tessone

Curriculum Vitæ

Personal data

Nationality Argentine, Italian. Domicile in Switzerland
Birth 15th March, 1974. Cipolletti, Argentina
Marital status married

Contact information

✉ URPP Social Networks – Universität Zürich
AND-4.42, Andreasstrasse 15
CH-8050 Zürich – Switzerland

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📡 ORCID: 0000-0001-7733-6221
Google Scholar: RAGOVXgAAAAJ

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Current position

08.2015 – Assistant Professor of Network Science

Place URPP Social Networks
Faculty of Economics, Business Administration and Information Technology
Institution Universität Zürich (CH)

Education

2015. Habilitation on “Complex socio-economic systems”

Place Dept. of Management, Technology and Economics, ETH Zürich (CH)
Thesis “Agent-based modelling of socio-economic systems: Social influence and network interactions”

2002 – 2006. PhD in Physics

Place Institut Mediterrani d’Estudis Avançats. Palma de Mallorca (ES)
Thesis “Synchronisation and collective effects in extended stochastic systems”
Supervisor Prof. Raúl Toral
Distinction *Summa Cum Laude*

1993 – 1999. Master in Physics

Place Instituto Balseiro. Universidad Nacional de Cuyo (AR)
Thesis “Stochastic resonance: New control parameters and coupled systems”

Employment history

12.2014 – 07.2015. URPP Social Networks, Universität Zürich (CH)

Position *Research Associate – Project leader for “Networks and Consumers”*

03.2007 – 12.2014. Chair of Systems Design. ETH Zürich (CH)

Position *Senior researcher*

09.2006 – 09.2007. Science Faculty. Universitat de les Illes Balears (ES)

Position *Visiting professor*

07.1999 – 08.2002. Faculty of Exact Sciences. Universidad Nacional de La Plata (AR)

Position *Research associate*

07.2000 – 09.2002. Engineering Faculty, Universidad Nacional de La Plata (AR)

Position *Lecturer (classroom and practices)*

Subject *Numerical Methods and Algorithms*

Other affiliations

2014 – Institute for Advanced Studies IMT. Lucca (IT)

Position *Visiting scholar*

2018 – Austrian Blockchain Center. Wien (AT)

Position *Member*

2016 – Centre for Blockchain Studies UCL. London (UK)

Position *Fellow*

Institutional responsibilities and Board membership

2017 –. Founder and Steering committee member of the “UZH Blockchain Centre” (CH)

Since 2016. Co-Director of the University Research Priority Programme on Social Networks. Universität Zürich (CH)

2016 –. Member of the Science IT Board. Universität Zürich (CH)

2017 –. Member of the Academic Board of the Excellence Initiative “Social Interactions and Complex Dynamics”. Université Côte d’Azur (FR)

Publications

⊕ Publications (accepted/submitted): 78

⊕ Areas: Interdisciplinary research, physics, computer science, economics, social sciences

⊕ Number of citations: 1140 (WoS), 2238 (Google Scholar) [11.2018]

⊕ Average citations per item: 19.39 (WoS)

⊕ *h*-index: 18 (WoS), 25 (Google Scholar)

⊕ Citations per year: 319 (Google Scholar, 2018)

Peer-reviewed publications

- 59 M.S. Mariani, Z.-M. Ren, J. Bascompte & C.J. Tessone: "Nestedness in complex networks: observation, emergence, and implications". To appear in *Physics Reports* (2019)
- 58 P. Tasca, & C.J. Tessone: "Ontology of Blockchain Technologies: Principles of Identification and Classification". To appear in *Ledger* (2019)
- 57 B.A. Furtado, M.A. Fuentes, C.J. Tessone: "Policy Modeling and Applications: state-of-the-art and perspectives". *Complexity* (2019)
- 56 M.A. Fuentes, B.A. Furtado, C.J. Tessone: "Editorial: Applied policy Modeling and Applications". *Complexity* (2019)
- 55 J.-H. Lin, C.J. Tessone, M.S. Mariani: "Nestedness maximization in complex networks through the fitness-complexity algorithm". in *Entropy*, pp. 768 vol. **20** (2018)
- 54 A. Solé-Ribalta, C.J. Tessone, M.M. Mariani & J. Borge-Holthoefer: "Revealing In-Block Nestedness: A pervasive structural pattern in networks". in *Physical Review E*, pp. 062302, vol. **97** (2018)
- 53 R. Tanase, C.J. Tessone & R. Algesheimer: "Identification of influencers through the wisdom of crowds". *PLOS ONE*, pp. e0200109 vol. **13** (2018)
- 52 M.V. Tomasello, C.J. Tessone & F. Schweitzer: "Quantifying knowledge exchange in R&D networks: a data-driven model". *Journal of Evolutionary Economics*, pp. 461, vol. **28** (2018)
- 51 Z. Yang, J.I. Perotti: "Hierarchical benchmark graphs for testing community detection algorithms". *Physical Review E*, pp. 052311, vol. **96** (2017)
- 50 A. Grimm & C.J. Tessone: "Analysing the sensitivity of nestedness detection methods". *Applied Network Science*, pp. 37, vol. **2** (2017)
- 49 Z. Yang, R. Algesheimer, and C.J. Tessone: "A comparative analysis of community detection algorithms on artificial networks". *Scientific Reports (Nature Publishing Group)*, pp. 30750, vol. **6** (2016)
- 48 M.V. Tomasello, C.J. Tessone, and F. Schweitzer: "A Model of Dynamic Rewiring and Knowledge Exchange in R&D Networks" *Advances in Complex Systems*, pp. 1650004 vol. **19** (2016)
- 47 J.I. Perotti, C.J. Tessone, and G. Caldarelli: "Hierarchical mutual information for the comparison of hierarchical community structures in complex networks" *Physical Review E*, pp. 062825 vol. **92** (2015)
- 46 F. Schweitzer, V. Nanumyan, C.J. Tessone, X. Xia: "How do OSS projects change in number and size? A large-scale analysis to test a model of project growth". *Advances in Complex Systems*, pp. 1550008, vol. **17** (2014)
- 45 I. Scholtes, N. Wider, R. Pfitzner, A. Garas, C.J. Tessone & F. Schweitzer: "Slow-Down vs. Speed-Up of Information Diffusion in Non-Markovian Temporal Networks". *Nature Communications*, pp. 5024, vol. **5** (2014)
- 44 D. Garcia, C.J. Tessone, P. Mavrodiev & N. Perony: "The digital traces of bubbles: feedback cycles between socio-economic signals in the Bitcoin economy". *Journal of the Royal Society: Interface*, pp. 20140623, vol. **11** (2014)

- 43 M. Tomasello, N. Perra, C.J. Tessone, M. Karsai & F. Schweitzer: "The role of endogenous and exogenous mechanisms in the formation of R&D networks". *Scientific Reports (Nature Publishing Group)*, pp. 5679, vol. **4** (2014)
- 42 M.D. König, C.J. Tessone & Y. Zenou: "Nestedness in Networks: A Theoretical Model and Some Applications". pp. 695–752, vol. **9** *Theoretical Economics* (2014)
- 41 M. Bardoscia, G. Luca, G. Livan, M. Marsili & C.J. Tessone: "The Social Climbing Game". *Journal of Statistical Physics*, pp. 440–457, vol. **151** (2013)
- 40 P. Mavrodiev, C.J. Tessone & F. Schweitzer: "Quantifying the effects of social influence". *Scientific Reports (Nature Publishing Group)*, pp. 1360, vol. **3** (2013)
- 39 R. Pfitzner, I. Scholtes, A. Garas, C.J. Tessone & F. Schweitzer: "Betweenness Preference: Quantifying Correlations in the Topological Dynamics of Temporal Networks". *Physical Review Letters*, pp. 198701, vol. **110** (2013)
- 38 C.J. Tessone, A. Sánchez & F. Schweitzer: "Diversity-induced resonance in the response to social norms". *Physical Review E*, pp. 022803, vol. **87** (2013)
- 37 C.J. Tessone, A. Garas, B. Guerra & F. Schweitzer: "How Big Is Too Big? Critical Shocks for Systemic Failure Cascades". *Journal of Statistical Physics*, pp. 765-783, vol. **151** (2013)
- 36 N. Perony, R. Pfitzner, I. Scholtes, C.J. Tessone & F. Schweitzer: "Enhancing Consensus Under Opinion Bias By Means of Hierarchical Decision Making". *Advances in Complex Systems*, pp. 1350020, vol. **16** (2013)
- 35 F. Schweitzer, P. Mavrodiev & C.J. Tessone: "How Can Social Herding Enhance Cooperation?". *Advances in Complex Systems*, pp. 1350017, vol. **16** (2013)
- 34 C.J. Tessone & D.H. Zanette: "Synchronised firing induced by network dynamics in excitable systems". *EPL (Europhysics Letters)*, pp. 68006, vol. **99** (2012)
- 33 I. Scholtes & C.J. Tessone: "Organic Design of Massively Distributed Systems: A Complex Networks Perspective". *Informatik-Spektrum*, pp. 75–86, vol. **35** (2012)
- 32 G. Harras, C.J. Tessone & D. Sornette: "Noise-induced volatility of collective dynamics". *Physical Review E*, pp. 011150, vol. **85** (2012)
- 31 N. Perony, C.J. Tessone, B. König & F. Schweitzer: "How Random Is Social Behaviour? Disentangling Social Complexity through the Study of a Wild House Mouse Population". *PLoS Computational Biology*, pp. e1002786, vol. **8** (2012)
- 30 C.J. Tessone, M.M. Geipel & F. Schweitzer: "Sustainable growth in complex networks". *EPL (Europhysics Letters)*, pp. 58005, vol. **96** (2011)
- 29 M.D. König & C.J. Tessone: "Network evolution based on centrality". *Physical Review E*, pp. 056108, vol. **84** (2011)
- 28 M.D. König, C.J. Tessone & Y. Zenou: "From Assortative To Dissortative Networks: The Role Of Capacity Constraints". *Advances in Complex Systems*, pp. 483, vol. **13** (2010)
- 27 F. Schweitzer, S. Battiston & C.J. Tessone: "Risk, Markets, Games, and Networks". *The European Physical Journal B*, pp. 439–440, vol. **71** (2009)

- 26 C.J. Tessone & R. Toral: "Diversity-induced resonance in a model for opinion formation". *The European Physical Journal B*, pp. 549–555, vol. **71** (2009)
- 25 M.M. Geipel, C.J. Tessone & F. Schweitzer: "A complementary view on the growth of directory trees". *The European Physical Journal B*, pp. 641–648, vol. **71** (2009)
- 24 A.E. Herrada, C.J. Tessone, K. Klemm, V.M. Eguíluz, E.H. García & C.M. Duarte: "Universal Scaling in the Branching of the Tree of Life". *PLoS ONE*, pp. e2757, vol. **3** (2008)
- 23 H.-U. Stark, C.J. Tessone & F. Schweitzer: "Slower is faster: Fostering consensus formation by heterogeneous inertia". *Advances in Complex Systems*, pp. 551–563, vol. **11** (2008)
- 22 C.J. Tessone, D.H. Zanette & R. Toral: "Global firing induced by network disorder in ensembles of active rotators". *The European Physical Journal B*, pp. 319–326, vol. **62** (2008)
- 21 H.-U. Stark, C.J. Tessone & F. Schweitzer: "Decelerating microdynamics can accelerate macrodynamics in the voter model". *Physical Review Letters*, pp. 018701, vol. **101** (2008)
- 20 V.M. Eguíluz & C.J. Tessone: "Critical behavior in an evolutionary ultimatum game with social structure". *Advances in Complex Systems*, pp. 221–232, vol. **12** (2008)
- 19 M. Cencini, C.J. Tessone & A. Torcini: "Chaotic synchronizations of spatially extended systems as nonequilibrium phase transitions". *Chaos: An Interdisciplinary Journal of Nonlinear Science*, pp. 037125, vol. **18** (2008)
- 18 C.J. Tessone, A. Scirè, R. Toral & P. Colet: "Global firing induced by noise or diversity in excitable media". *Physical Review E*, pp. 016203, vol. **75** (2007)
- 17 R. Toral & C.J. Tessone: "Finite size effects in the dynamics of opinion formation". *Communications in Computational Physics*, pp. 177–195, vol. **2** (2007)
- 16 R. Toral, C.J. Tessone & J.V. Lopes: "Collective effects induced by diversity in extended systems". *European Physical Journal Special Topics*, pp. 59–67, vol. **143** (2007)
- 15 C.J. Tessone, M. Cencini & A. Torcini: "Synchronization of extended chaotic systems with long-range interactions: an analogy to Lévy-flight spreading of epidemics". *Physical Review Letters*, pp. 224101, vol. **97** (2006)
- 14 C.J. Tessone & H.S. Wio: "Stochastic Resonance in an Extended FitzHugh-Nagumo System: the Role of Selective Coupling". *Physica A: Statistical Mechanics and its Applications*, pp. 46–54, vol. **374** (2006)
- 13 C.J. Tessone, E. Ullner, A. Zaikin, J. Kurths & R. Toral: "Noise-induced inhibitory suppression of frequency-selective stochastic resonance". *Physical Review E*, pp. 046220, vol. **74** (2006)
- 12 C.J. Tessone, C.R. Mirasso, R. Toral & J.D. Gunton: "Diversity-Induced Resonance". *Physical Review Letters*, pp. 194101, vol. **97** (2006)
- 11 C.J. Tessone & R. Toral: "System size stochastic resonance in a model for opinion formation". *Physica A: Statistical Mechanics and its Applications*, pp. 106–116, vol. **351** (2005)
- 10 A. Scirè, C.J. Tessone & P. Colet: "Dynamics of coupled self-pulsating semiconductor lasers". *IEEE Journal of Quantum Electronics*, pp. 272–279, vol. **41** (2005)

- 9 C.J. Tessone, R. Toral, P. Amengual, H.S. Wio & M. Miguel: "Neighborhood models of minority opinion spreading". *The European Physical Journal B*, pp. 535–544, vol. **39** (2004)
- 8 M.A. Fuentes, C.J. Tessone, H.S. Wio & R. Toral: "Stochastic resonance in bistable and excitable systems: effect of non-gaussian noises". *Fluctuation and Noise Letters*, pp. L365–L371, vol. **3** (2003)
- 7 C.J. Tessone, A. Plastino & H.S. Wio: "Stochastic resonance and generalized information measures". *Physica A: Statistical Mechanics and its Applications*, pp. 37–54, vol. **326** (2003)
- 6 S. Martínez, F. Pennini, A. Plastino & C.J. Tessone: "q-Thermostatistics and the black-body radiation problem". *Physica A: Statistical Mechanics and its Applications*, pp. 85–105, vol. **309** (2002)
- 5 S. Martínez, F. Pennini, A. Plastino & C.J. Tessone: "On the equipartition and virial theorems". *Physica A: Statistical Mechanics and its Applications*, pp. 48–51, vol. **305** (2002)
- 4 A.F. Rozenfeld, C.J. Tessone, E. Albano & H.S. Wio: "On the influence of noise on the critical and oscillatory behavior of a predator-prey model: coherent stochastic resonance at the proper frequency of the system". *Physics Letters A*, pp. 45–52, vol. **280** (2001)
- 3 S. Martínez, F. Pennini, A. Plastino & C.J. Tessone: "Blackbody radiation in a nonextensive scenario". *Physica A: Statistical Mechanics and its Applications*, pp. 224–229, vol. **295** (2001)
- 2 C.J. Tessone, H.S. Wio & P. Hänggi: "Stochastic resonance driven by time-modulated correlated white noise sources". *Physical Review E*, pp. 4623, vol. **62** (2000)
- 1 C.J. Tessone & H.S. Wio: "Stochastic Resonance in Bistable Systems: The Effect of Simultaneous Additive and Multiplicative". *Modern Physics Letters B*, pp. 1195–1202, vol. **12** (1998)

Conference proceedings

- C72 M. Geier, C.J. Tessone, M. Vanotti, S. Vileriño, D.A. González Márquez, E.E. Mocskos: "Using Network Emulation to study Blockchain Distributed Systems: The Ethereum Case". *IEEE Euro-micro Conference on Parallel and Distributed Processing* (2019)
- C71 L. Zavolokina, F. Spsychiger, C.J. Tessone & G. Schwabe: "An Incentive System for Blockchains – Learning from the Digital Vehicle Dossier". *International Conference On Information Systems* (2018)
- C70 A. Grimm, C.J. Tessone: "Detecting Nestedness in Graphs". In *International Workshop on Complex Networks and their Applications*, Ed. Springer. pp. 171–182 (2017).
- C69 M.V. Tomasello, C.J. Tessone & F. Schweitzer: "The effect of R&D collaborations on firms' technological positions". In *Proceedings of the 10th International Forum IFKAD*, pp. 260–276 (2015)
- C68 M.S. Zanetti, C.J. Tessone, I. Scholtes & F. Schweitzer: "Automated Software Remodularization Based on Move Refactoring". In *13th International Conference on Modularity* (2014)
- C67 M.S. Zanetti, I. Scholtes, C.J. Tessone & F. Schweitzer: "The Rise and Fall of a Central Contributor: Dynamics of Social Organization and Performance in the GENTOO Community". In *6th International Workshop on Cooperative and Human Aspects of Software Engineering CHASE* (2013)
- C66 M.S. Zanetti, I. Scholtes, C.J. Tessone & F. Schweitzer: "Categorizing Bugs with Social Networks: A Case Study on Four Open Source Software Communities". In *35th International Conference on*

Software Engineering (ICSE), published by *IEEE Software Engineering in Practice*, pp. 1032–1041 (2013)

- C65** N. Perony, R. Pfitzner, I. Scholtes, C.J. Tessone & F. Schweitzer: “Hierarchical Consensus Formation Reduces the Influence of Opinion Bias”. In *Proceedings of the 26th European Conference on Modelling and Simulation* (2012)
- C64** P. Mavrodiev, C.J. Tessone & F. Schweitzer: “Effects of Social Influence on the Wisdom of the Crowds”. In *Collective Intelligence* (2012)
- C63** M.S. Zanetti, E. Sarigöl, I. Scholtes, C.J. Tessone & F. Schweitzer: “A Quantitative Study of Social Organisation in Open Source Software Communities”. In *Imperial College Computing Student Workshop*, published by *Schloss Dagstuhl–Leibniz-Zentrum für Informatik*, pp. 116–122 (2012)
- C62** E.H. García, A.E. Herrada, A.F. Rozenfeld, C.J. Tessone, V.M. Eguíluz, C.M. Duarte, S.A. Haond & E. Serrão: “Evolutionary and Ecological Trees and Networks”. In *Nonequilibrium Statistical Mechanics And Nonlinear Physics: XV Conference on Nonequilibrium Statistical Mechanics and Nonlinear Physics*, O. Descalzi, O.A. Rosso & H.A. Larrondo (Eds.), published by *AIP Conference Proceedings*, pp. 78–83, vol. **913** (2007)
- C61** A. Scirè, M. Sorel, P. Colet, C.J. Tessone, C.R. Mirasso & M. Miguel: “Two-mode dynamics in different semiconductor laser structures”. In *Semiconductor Lasers and Laser Dynamics II*, D. Lenstra, M. Pessa & I.H. White (Eds.), published by *SPIE*, pp. 38–52, vol. **6184** (2006)
- C60** C.J. Tessone, R. Toral, C.R. Mirasso & J.D. Gunton: “Coherence resonance in coupled excitable systems: dependence with system size”. In *Proceedings of the International School of Physics Enrico Fermi, Course CLV: The Physics of Complex Systems (New Advances and Perspectives)*, F. Mallamace & H.E. Stanley (Eds.), published by *IOS Press (Amsterdam)*, pp. 461–467 (2004)

Book chapters

- B73** C.J. Tessone: “The complex nature of social systems”. In *Modelling complex systems for public policies*, B. Alves Furtado, Ed. (2015)

Under review

- 80** M.J. Palazzi, J. Borge-Holthoefer, C.J. Tessone, A. Solé Ribalta: “Antagonistic structural patterns in complex networks”. Under review in *Physical Review Letters* (2018)
- 79** F. Albanese, C.J. Tessone, V. Semeshenko & P. Balenzuela: “A two dimensional data driven model for Mass Media Influence on opinion formation”. Under review in *Journal of the Royal Society: Interface* (2018)
- 78** J.I. Perotti, C.J. Tessone, G. Caldarelli & A. Clauset: “Thermodynamics of the Minimum Description Length on Community Detection”. Under review in *Physical Review X* (2018)
- 77** Z. Yang, J.I. Perotti, M. Román, C.J. Tessone: “Evaluating Hierarchical Community Detection Algorithms in Artificial Networks”. Under review in *Scientific Reports* (2018)
- 76** B.A. Furtado, M.A. Fuentes, C.J. Tessone: “Policy Modeling and Applications: state-of-the-art and perspectives”. Under review in *Complexity* (2018)
- 75** A. Camacho Guardian, C.J. Tessone & R. Algesheimer: “Revealing the effects of network size on social mechanisms”. Under review in *Network Science* (2018)

74 M. Kindschi, J. Ciecuch, E. Davidov, A. Ehlert, H. Rauhut, C.J. Tessone & R. Algesheimer: "Values in Friendship Networks". Under review in *Network Science* (2018)

Working papers

- 92 A. Bovet, C. Campajola, J.F. Lazo, F. Mottes, I. Pozzana, V. Restocchi, P. Saggese, N. Vallarano, T. Squartini, C.J. Tessone: "Network-based indicators of Bitcoin bubbles". *working paper* arXiv:1805.04460 (2018)
- 91 A. Solé-Ribalta, C.J. Tessone, C.G. Ferrari, J. Borge-Holthoefer: "Nestedness prevails over disorder in d -partite complex systems". *working paper* (2018) arXiv:1807.04666
- 90 P. Mavrodiev, C.J. Tessone & F. Schweitzer: "Designing wise crowds: the importance of ranking and competition". *working paper* (2018)
- 89 J.-H. Lin, Z. Yang, H. Liao & C.J. Tessone: "Ranking the spreading influence of nodes using dynamic Markov process". *working paper* (2018)
- 88 C.J. Tessone & D. Garcia: "Bitcoin: Centralisation of a decentralised economy". *working paper* (2018)
- 87 C.J. Tessone & P. Tasca: "Stochastic modelling of blockchain consensus". *working paper* (2018)
- 86 D. Arnold, M. d'Errico & C.J. Tessone: "Money walks: An empirical study of the velocity and reuse of bitcoins". *working paper* (2019)
- 85 A. Grimm, C.J. Tessone: "Detecting nested components in real-world networks". *working paper* (2018)
- 84 A. Camacho Guardian, C.J. Tessone and R. Algesheimer: "Modelling the interdependencies between social mechanisms underlying the formation of networks". *working paper* (2018)
- 83 C.J. Tessone, G. Caldarelli & D. Garlaschelli: "Temporal Fitness: A model for temporal networks". *working paper* (2018)
- 82 C.J. Tessone: "Collective behaviour induced by network volatility". ETH Risk Center Working Paper Series; No. 14-010 (2018)
- 81 J. Schilling & C.J. Tessone: "Empirical evidence of cartel mining in cryptocurrencies". *working paper* (2019)

Research grants

2019-2021. “Influencer and Innovator Identification in Temporal Networks”. Swiss National Science Foundation - Track II. Amount: 348'000 CHF (2 years) (CH)

2018-2019. PI “Visualisation and interaction with models of social and economic complexity”. Universität Zürich (CH). *Competitive Lehrkredit*. CHF 36'000

Since 2017. CSC Fellowships for External PhD Students (CN). Total amount CHF 200'000

Since 2015. Funds for group personnel through URPP Social Networks (CH). Total amount CHF 300'000

Funding requested

2019-2022. “Unveiling Network Nestedness: Characterisation, Assemblage and Modelling”. Swiss National Science Foundation - Track II. Amount: CHF 498'000 (3 years) (CH)

2019 Participant of the application NCCR “Digital Trust”.

Scholarships and awards

05.2014 – 10.2014. Consultant for the Instituto Pesquisa Econômica Aplicada (BR)

Reason Writing and lecturing a book chapter entitled “The complex nature of social systems” for the book *Modeling complex systems for public policies*

07.2002 – 12.2006. FPI Fellowship of the Spanish Science and Technology Ministry (ES)

Reason *Doctoral studies*

Place *Institut Mediterrani d'Estudis Avançats, Universitat de les Illes Balears*

06.2001 – 09.2002. Fundación Antorchas Fellow

Position *Research assistant at La Plata Physics Institute (AR)*

Place *Universidad Nacional de La Plata*

07.1999 – 06.2001. F.O.M.E.C. Fellow

Position *Research assistant at La Plata Physics Institute (AR)*

Place *Universidad Nacional de La Plata*

07.1995 – 03.1999. Fellowship from of Argentine National Council for Atomic Energy (AR)

Reason *Degree studies*

Place *Instituto Balseiro, Centro Atómico Bariloche*

1993. Participant of the XXXII International Mathematical Olympiad, Istanbul (TR)

1992. Finalist of the IX Argentine Mathematical Olympiad, Buenos Aires (AR)

Teaching experience

- 2018** – Faculty of Business, Economics and Informatics, Universität Zürich (CH)
Subject Economics of Blockchain Systems (for Bachelor students)
- 2017** – Faculty of Business, Economics and Informatics, Universität Zürich (CH)
Subject Agent-based Modelling (course for Masters students)
- 2015** – Faculty of Business, Economics and Informatics, Universität Zürich (CH)
Subject Network Theory and Analytics (course for Masters students)
- 2016** – Faculty of Business, Economics and Informatics, Universität Zürich (CH)
Subject Reading Group on Marketing and Network Science (for PhD students)
- 2015** – Faculty of Business, Economics and Informatics, Universität Zürich (CH)
Subject Seminar on Network Science (for PhD students)
- 2017**. Shanghai University for Finance and Economics (CN)
Subject Complex Socio-Technical Systems (for PhD students)
- 2017**. Faculty of Exact and Natural Sciences. Universidad de Buenos Aires (AR)
Subject Statistical Physics of Socio-Economic Systems (for PhD students)
- 2006**. Science Faculty, Universitat de les Illes Balears (ES)
Position *Lecturer*
Subject Physics for Computer scientists, chemistry and biochemistry
- 2000 – 2002**. Engineering Faculty, Universidad Nacional de La Plata (AR)
Position *Lecturer*
Subjects Numerical Methods and Algorithms
- 1999 – 2001**. Exact Sciences Faculty, Universidad Nacional de La Plata (AR)
Subjects Statistics, Numerical Methods, Physics I, Physics II, Calculus II, Algebra

Mentoring

- ⊕ Postdoc: M.S. Mariani.

Supervision of PhD students

- ⊕ Alexander Grimm (as supervisor): “Knowledge Transfer in Organizations – Algorithmic Framework for Analyzing Communication Networks”. Since 2015. Defended Thesis: September 2018
- ⊕ Francesco de Collibus (as supervisor): “Detecting influential spreaders in social networks”. Since 02.2018
- ⊕ Jian-Hong Lin (as supervisor): “Diffusion of information in temporal networks”. Since 09.2017
- ⊕ Sheng-Nan Li (as supervisor): “Data Science approaches to Cryptocurrencies”. Start 02.2019
- ⊕ Florian Spychinger (as supervisor): “Incentive schemes design in blockchain-based systems”. Start 02.2019

- ⊕ Zhao Yang (as co-supervisor): “Unethical Customer Behavior – Causes, Consequences, Detection and Managerial Implications”. Defended Thesis: 2017
- ⊕ Abel Camacho Guardian (as co-supervisor): “Three essays on social network theory”. Defended Thesis: 2017
- ⊕ Radu Tanase (as co-supervisor): “Social Influence: Identification, Effect and Extensions”. Defended Thesis: 2018
- ⊕ *Stays by visiting Foreign PhD (minimum three months):* H. Liu, C. Ferrari, M. Geier.
- ⊕ *Main responsible for supervision while postdoc:* H.-U. Stark, M. Geipel, M.S. Zanetti, P. Mavrodiev, M. Tomasello.

Supervision of Master students

- ⊕ Ruurd Boomsma: Transactional Behavior in decentralised economies - Tokens in the Ethereum Network (2019)
- ⊕ Jennifer Stoffel: Initial Coin Offerings - Successfully Raising Money through a Blockchain-Based Application (2018)
- ⊕ Joris Klostermann: Business models based on blockchain (2018)
- ⊕ Dominik Arnold: The Speed of money in the Bitcoin economy (2018)
- ⊕ Michael Kilchenmann: The effects of social interactions, financial asset prices and transactions inside the bitcoin economy on price (2017)
- ⊕ *other:* K. Feghali, V. Tardon (UCL). V. Nanumyan, A. Grimm, X. Xi (ETHZ)

Supervision of Bachelor students

- ⊕ Manuel Ritter: Taxonomy of technologies based on blockchains (2019)
- ⊕ Leandro Künzli: Blockchain as basis for state currencies - Decentralizing a centralized system (2019)
- ⊕ Dario Bugmann: Mining concentration and capital accumulation in Bitcoin (2019)
- ⊕ Sebastien Gäumann: Adoption and diffusion of social media consumption (2019)
- ⊕ Joris Klostermann: Business models based on blockchain (2018)
- ⊕ Kaen Do: Analysis of the Eraffe Social Network (2018)
- ⊕ Julius Schilling: Analysing the Mining Concentration of Cryptocurrencies (2018)
- ⊕ Kevin Ulrich: Contemporary bockchain solutions to public policy issues (2018)
- ⊕ Torben Mannhart: The bow-tie structure of the Bitcoin transaction network (2018)
- ⊕ Konstantin Leidenberg: Crypto Currencies: A danger for central banks? (2018)
- ⊕ Ashly Kolenchery: Dynamics of Social Organisation and Performance in the Bitcoin developer network (2018)
- ⊕ Zora Müller: Co-working spaces market: Analysis and expansion (2017)
- ⊕ *other:* F. Marbach (ETHZ)

PhD and Habilitation evaluation committee member

2018. Valerio Restocchi, University of Southampton. England (UK)

- 2018. Radu Tanase, Universität Zürich. Zürich (CH)
- 2017. Abel Camacho Guardian, Universität Zürich. Zürich (CH)
- 2017. Zhuo-Ming Ren, Université de Fribourg. Fribourg (CH)
- 2017. Zhao Yang, Universität Zürich. Zürich (CH)
- 2016. Matúš Medo, Université de Fribourg. Fribourg (CH). *Habilitation*
- 2016. Giuseppe Pappalardo, Institute for Advanced Studies IMT. Lucca (IT)
- 2015. Matteo Chinazzi, Sant'Anna School of Advanced Studies. Pisa (IT)
- 2015. Gabriele Ranco, Institute for Advanced Studies IMT. Lucca (IT)
- 2014. Programme for PhD in "Economics, Management Science and Complex Systems". Institute for Advanced Studies IMT. Lucca (IT)

Conference and workshop presentations

Invited conference talks

- 2019. "The (hidden?) incentive schemes of cryptocurrencies". SEED'19. Davos (CH)
- 2018. "Cryptocurrencies: A centralised destiny for decentralised economies?". Social interactions and complex dynamics. Nice (FR)
- 2018. "Cryptocurrencies and economic complexity". Conference on New Information Technologies. Huai An (CN)
- 2018. "An econophysics view on cryptocurrencies". Econophysics Colloquium 2018. Palermo (IT)
- 2018. "The paths to centralisation in blockchain-based systems". Blocknets. Paris (FR)
- 2018. "Of blockchains and cryptocurrencies". Cryptodatathon Keynote. Zürich (CH)
- 2018. "A complex systems introduction to blockchains and cryptocurrencies". Complexity72H Lucca (IT)
- 2018. *Panelist* on "Fintech". Finexus 2018. Zürich (CH)
- 2017. "Statistical Mechanics of Blockchain-based systems". American Physical Society March Meeting. New Orleans (USA)
- 2017. "From the Emergent Centralisation of Bitcoin to the Limits of Blockchain-based Systems". Blockchain from a Central Bank Perspective. Zürich (CH)
- 2017. "Bitcoin: when a decentralised economy becomes centralised". Scientifica. *Open Lecture*. Zürich (CH)
- 2017. "Technocracy and fixed Incentive schemes: the centralised doom for Bitcoin". CSH Workshop WeCoS - Understanding the Web as a Complex System: Complexity Science meets Web Science. Wien (AT)
- 2016. "Stochastic modelling of blockchain-based systems". Peer-to-peer Financial Systems. London (UK)

- 2016. "Diverse but convergent: designing wise crowds with competition and social interactions". Latin American School on Data Analysis and Mathematical Modeling of Social Science. Buenos Aires (AR)
- 2016. "Designing Wise Crowds: Social Influence and Competition". Collective behavior in the big data area. Toulouse (FR)
- 2015. "The Technology behind blockchains". P2P Financial Systems. Frankfurt (DE)
- 2014. "The complex nature of social systems". Seminar Modeling Complex Systems for Public Policies. Brasília (BR)
- 2012. "Effects of volatility in real-world networks: modelling based on monogamous networks". CSECS/Architecture of Computing Systems 2012. München (DE)
- 2008. "Chaotic synchronization in extended systems as out-of-equilibrium phase transitions. Network Synchronization: from dynamical systems to neuroscience". Leiden (NL)
- 2006. "Collective phenomena driven by network heterogeneity in excitable systems". MEDYFINOL. Mar del Plata (AR)

Conference contributions

- 2018. "The statistical properties of wealth accumulation in Cryptocurrency Economies". Computing in Economics and Finance. Milano (IT)
- 2017. "In-block Nested Structural Patterns in Ecological and Social Networks". 6th International Conference on Complex Networks. Lyon (FR)
- 2017. "Bitcoins: A fate of centralisation for decentralised money supply". Computing in Economics and Finance. New York (USA)
- 2017. "The limits of efficiency in blockchain systems: Parsimonious modelling and data". NetSci 2017. Indianapolis (USA)
- 2016. "Temporal fitness: Modelling systems with varying network interactions". NetSci 2016. Seoul (KR)
- 2016. "Understanding the evolution of economic networks through temporal fitness". Statistical Physics of Financial and Economic Networks. Paris (FR)
- 2016. "Network volatility as a source of collective dynamics". International Conference on Computational Social Science. Helsinki (FI)
- 2014. "Bitcoins: the transition towards centralisation of a decentralised economy". NetSci 2014. *Lightning talk*. Berkeley (USA)
- 2014. "Collective behaviour induced by network volatility". Temporal Networks in Human Dynamics, NetSci 2014. Berkeley (USA)
- 2011. "Software evolution: from inhomogeneous evolution to coarse-grained dynamics". European Conference on Complex Systems. Wien (AT)
- 2011. "Global synchronisation induced by network dynamics in excitable systems". European Conference on Complex Systems. Wien (AT)

2010. "Network evolution based on centrality: coexistence of hierarchies and random networks". 14th Computing in Economics and Finance. London (UK)
2010. "Evolution based on centrality: Bistability between hierarchical and de-structured networks". Deutsche Physikalische Gesellschaft - Tagungen. Regensburg (DE)
2009. "Social network evolution based on agent centrality". European Social Science Association. Guildford (UK)
2008. "Network evolution induced by agents competing for high centrality". BCNet. Barcelona (ES)
2008. "Social network formation of agents competing for high centrality". Workshop on Economic Science with Heterogeneous Interacting Agents. Warsaw (PL)
2008. "Chaotic synchronization in extended systems as out-of-equilibrium phase transitions. Network Synchronization: from dynamical systems to neuroscience". *Invited talk*. Leiden (NL)
2007. "Reluctance to opinion change leads to faster consensus". COST P10 Annual Meeting. Palermo (IT)
2006. "Collective phenomena driven by network heterogeneity in excitable systems". MEDYFINOL. *Invited talk*. Mar del Plata (AR)
2006. "A theory for collective firing in excitable systems". BIOSIM Meeting. Potsdam (DE)
2006. "Disorder-induced resonance". BIOSIM Meeting. Warwick (UK)
2005. "Disorder-induced resonance". VII Latin-American Workshop on Non-linear Phenomena. S.C. de Bariloche (AR)
2005. "Global coherence induced by noise or diversity in excitable systems". 1st BIOSIM meeting. Cala-Vinyes (ES)
2005. "System-size stochastic resonance in fashion spreading". School "Physics of social systems". Bad-Honnef (DE)
2005. "Coherencia global inducida por ruido o diversidad en sistemas excitables". Anual Meeting FisEs. Madrid (ES)
2004. "System size coherence resonance in fashion spreading". COST P10 Workshop. Panormo (GR)
2004. "Neighborhood models of minority opinion spreading". 10th Computing in Economics and Finance. Amsterdam (NL)
2003. "Phase transition to synchronization in a coupled FitzHugh–Nagumo model". Non–Equilibrium Phenomena and Phase Transitions in Complex Systems. Benasque (ES)
2000. "Empleo de lógica difusa y redes neuronales para el modelado de la producción de Protopectinas por fermentación sobre sustrato sólido". II International Congress on Informatics and Engineering. Buenos Aires (AR)

Academic activities

Editorial Board membership

- ⊕ Frontiers in Blockchain. Chief Editor of the Non-Financial Blockchains Section (Since 2018)
- ⊕ PLOS ONE. Associate Editor. Area: Complex Systems, Network Science, Physics (Since 2018)
- ⊕ 4open (EDP Sciences) - Associate Editor. Area: Physics – Applied Physics (Since 2017)

Guest editor

- ⊕ Applied network Science: Special Issue on “Blockchain and Cryptocurrencies” (2019)
- ⊕ Complexity: Special Issue on “Public Policy Modelling and Applications” (2018)
- ⊕ European Physical Journal “B”: Condensed Matter and Complex Systems (2009)

Referee for peer-reviewed Journals

- ⊕ Physical Review Letters, Nature Communications, Science Advances, Scientific Reports, Journal of the Royal Society: Interface, EPL (Europhysics Letters), Physical Review E, Journal of Economic Dynamics and Control, Royal Society Open Science, European Physical Journal “B”, Physica “A”, Physics Letters “A”, Journal of Statistical Mechanics (JSTAT), Advances in Complex Systems, Communications in Computational Physics, Journal of Statistical Physics, PLoS ONE, Fluctuation and Noise Letters, Journal of Economic Interaction and Coordination, Journal of Complex Networks, Network Science, EPJ Data Science, International Review of Financial Analysis, Journal of Risk Analysis

Programme chair

- 2016 - . ThePiik Symposium on Network Science (Swiss Chapter of the Network Science Society)
- 2016. Interdisciplinary event: ThePiik <http://www.thepiik.com>
- 2015. International Workshop “P2P Finance Systems”

Programme committee member

- 2019. IEEE International Conference on Blockchain and Cryptocurrency
- 2016 - 2018. VI International Conference on Complex Networks
- 2016. NetSci
- 2014 - 2015 . Workshop on Self-Improving System Integration
- Since 2012. Self-Adaptive and Self-Organizing Systems (within ARCS)

Referee for peer-reviewed conferences

- ⊕ Hawaii International Conference on System Sciences, European Social Simulation, European Conference on Complex Systems, Architecture of Computing Systems, IEEE International Conference on Self-Adaptive and Self-Organizing Systems

Project evaluation

- 2018. Swiss National Science Foundation Doc.CH
- 2012 - 2017. Argentine Research Council (CONICET)
- 2014. Argentine Fund for the Scientific and Technological Research (FONCyT)

Languages

Spanish. Native tongue

English. Fluent (written and spoken)

Italian. Fluent (written and spoken)

German. Intermediate (written and spoken)

Computer skills

Ample knowledge. C++ (including diverse libraries like STL, Qt, igrph), c.

Python (including numpy, matplotlib, igrph, networkx, graph-tool).

LaTeX typesetting.

Linux (administrator and user for 20 over years).

Good knowledge. bash, Fortran, Java, Mathematica.

Basic knowledge. R, PHP, JavaScript, Matlab.


System administration. Deployment of: Document Management Systems (alfresco, ownCloud), Cluster Systems (OpenStack, Torque, Mosix).

Repository management (Debian/Ubuntu).

Development and maintenance of “ETH Risk Center Working Paper Series”.

Since 2003. Developer of the project Python Systematic Parameter Generator:

Library for execution and analysis of massive numerical simulations (GPL Licence),

 <http://github.com/tessonec/PySPG>