

LUIZ F. O. CHAMON

<https://www.luizchamon.com>

luiz.chamon@simtech.uni-stuttgart.de

POSITIONS

- University of Stuttgart—Germany** 2022–present
Independent research group leader (ELLIS–SimTech)
- University of California, Berkeley—USA** 2021–2022
Postdoctoral researcher at the Simons Institute for the Theory of Computing
- University of Pennsylvania—USA** 2020–2021
Postdoctoral researcher

EDUCATION

- University of Pennsylvania—USA** 2015–2020
Ph.D. in Electrical Engineering
 - Thesis: Constrained learning and inference (Advisor: Alejandro Ribeiro).
- Polytechnic School of the University of São Paulo—Brazil** 2012–2015
M.Sc. in Electrical Engineering
 - Dissertation: Combinations of Adaptive Filters (Advisor: Cássio Guimarães Lopes).
- École Centrale de Lyon and INSA-Lyon—France** 2009
Undergraduate exchange student of the M.Sc. in Acoustics program
- Polytechnic School of the University of São Paulo—Brazil** 2006–2011
B.Sc. in Electrical Engineering (Electronic Systems)

RESEARCH EXPERIENCE

- Polytechnic School of the University of São Paulo—Brazil** 2015
Electronic Systems Engineering Department
 - Design and prototype of an open source microphone array for acoustic imaging ([GitHub](#)).
- Polytechnic School of the University of São Paulo—Brazil** 2010–2013
Mechanical Engineering Department
 - Responsible for designing and implementing the vibroacoustic system of a full-sized *aircraft cabin simulator* in collaboration with EMBRAER (Brazilian aeronautic industry).
- Polytechnic School of the University of São Paulo—Brazil** 2009–2011
Mechanical Engineering Department
 - Student researcher in an auralization project with the *Institut für Technische Akustik*, RWTH, Germany.

TEACHING/MENTORING

- Women in STEM** 2022
Judge of the [ENVISION research competition](#)
- University of Pennsylvania** 2018–2019
Mentor for the research experience for undergraduate program [SUNFEST](#)
- University of Pennsylvania** 2016–2020
TA and lecturer for the Stochastic Processes and Signal Processing undergraduate courses.

Polytechnic School of the University of São Paulo—Brazil

2013–2014

TA for the Stochastic Processes undergraduate course

- Created instructional videos that have accumulated over 450 followers and 140.000 views ([Youtube](#)—in Portuguese).

INSACAST Formation Continue—France

2009

Assistant instructor

- Taught undergraduate laboratories, certification workshops (COFREND and Dassault Aviation), and developed tutorials on ultrasonic nondestructive testing of concrete.

AWARDS & FELLOWSHIPS

- **2020:** Best student paper award at IEEE ICASSP 2020.
- **2020:** Best paper award at IEEE ICASSP 2020.
- **2018:** Best Ph.D. colloquium award
(Dept. of Electrical and Systems Engineering, University of Pennsylvania).
- **2018:** Good citizen award for services to the department
(Dept. of Electrical and Systems Engineering, University of Pennsylvania).
- **2018:** Outstanding editorial board service (IEEE Transactions on Signal Processing).
- **2013:** IEEE Standard Education Committee grant.
- Travel grants to major conferences, such as ICASSP, CDC, NeurIPS, and USENIX NSDI.

INVITED SEMINARS

- **April 2022:** Young Investigators Lecture Series (Caltech).
- **January 2022:** Foundations of Data Science Institute (FODSI) retreat.
- **December 2021:** Deep Learning Theory Symposium (Simons Institute).
- **April 2021:** Microsoft Research.
- **March 2021:** Massachusetts Institute of Technology (MIT EECS).
- **February 2021:** Johns Hopkins Mathematical Institute for Data Science (MINDS).
- **February 2021:** Toyota Technological Institute at Chicago (TTIC).

REVIEWER/REFeree

- IEEE Trans. on Signal Processing; IEEE Signal Processing Letters; IEEE Signal Processing Magazine; IEEE Journal of Selected Topics in Signal Processing; IEEE Trans. on Signal and Information Processing over Networks; IEEE Trans. on Automatic Control; IEEE Trans. on Control of Network Systems; and conferences, such as NeurIPS, ICML, ICASSP, CDC...

PROFESSIONAL EXPERIENCE

Statistical analyses consulting

2010–2015

- *Statistical consulting* for research projects in medicine, behavioral sciences, ergonomics, etc.

INSACAST Formation Continue—France

2009

- *Consultant* in the design of a crack detection system for Saint-Gobain.

National Institute for Space Research (INPE)—Brazil

2004

- *Laboratory assistant* of the *Satellite Power Supply Group*. Participated in solar cells tests, project revisions, and *power budget negotiations* with Chinese delegations.

LANGUAGES

- Fluent in *English* (TOEFL iBT: 114), *French*, and *Portuguese*.

PUBLICATIONS ([GOOGLE SCHOLAR](#))

PREPRINTS

- [1] J. Cervino, **L. F. O. Chamon**, B. D. Haeffele, R. Vidal, and A. Ribeiro, “Learning globally smooth functions on manifolds,” 2022.
- [2] I. Hounie, **L. F. O. Chamon**, and A. Ribeiro, “Automatic data augmentation via invariance-constrained learning,” 2022.
- [3] M. Calvo-Fullana, S. Paternain, **L. F. O. Chamon**, and A. Ribeiro, “State augmented constrained reinforcement learning: Overcoming the limitations of learning with rewards,” 2021.
- [4] L. Ruiz, **L. F. O. Chamon**, and A. Ribeiro, “Transferability properties of graph neural networks,” 2021.
- [5] **L. F. O. Chamon**, S. Paternain, and A. Ribeiro, “Trust but verify: Assigning prediction credibility by counterfactual constrained learning,” 2020.
- [6] **L. F. O. Chamon** and C. G. Lopes, “Combination of LMS adaptive filters with coefficients feedback,” *arXiv*, 2016.

PATENTS

- [1] D. Lamb, **L. F. O. Chamon**, V. H. Nascimento, and A. Spirer, *Sparse cascaded-integrator-comb filters*, US10367477B2, 2019.

JOURNALS

- [1] S. Paternain, M. Calvo-Fullana, **L. F. O. Chamon**, and A. Ribeiro, “Safe policies for reinforcement learning via primal-dual methods,” *IEEE Trans. on Autom. Control. (accepted)*, 2023.
- [2] **L. F. O. Chamon**, A. Amice, and A. Ribeiro, “Approximately supermodular scheduling subject to matroid constraints,” *IEEE Trans. on Autom. Control.*, vol. 67[3], pp. 1384–1396, 2022.
- [3] **L. F. O. Chamon**, S. Paternain, M. Calvo-Fullana, and A. Ribeiro, “Constrained learning with non-convex losses,” *IEEE Trans. on Inf. Theory*, 2022.
- [4] L. Ruiz, **L. F. O. Chamon**, and A. Ribeiro, “Graphon signal processing,” *IEEE Trans. on Signal Process.*, vol. 69, pp. 4961–4976, 2021.
- [5] **L. F. O. Chamon**, G. J. Pappas, and A. Ribeiro, “Approximate supermodularity of Kalman filter sensor selection,” *IEEE Trans. on Autom. Control.*, vol. 66[1], pp. 49–63, 2021.
- [6] M. Peifer, **L. F. O. Chamon**, S. Paternain, and A. Ribeiro, “Sparse multiresolution representations with adaptive kernels,” *IEEE Trans. on Signal Process.*, vol. 68[1], pp. 2031–2044, 2020.
- [7] **L. F. O. Chamon**, Y. C. Eldar, and A. Ribeiro, “Functional nonlinear sparse models,” *IEEE Trans. on Signal Process.*, vol. 68[1], pp. 2449–2463, 2020.
- [8] M. Eisen, C. Zhang, **L. F. O. Chamon**, D. D. Lee, and A. Ribeiro, “Learning optimal resource allocations in wireless systems,” *IEEE Trans. on Signal Process.*, vol. 67[10], pp. 2775–2790, 2019.

- [9] **L. F. O. Chamon** and A. Ribeiro, “Greedy sampling of graph signals,” *IEEE Trans. on Signal Process.*, vol. 66[1], pp. 34–47, 2018.
- [10] D. Lamb, **L. F. O. Chamon**, and V. H. Nascimento, “An efficient filtering structure for spline interpolation and decimation,” *IET Electronics Letters*, vol. 52[1], pp. 39–41, 2016.
- [11] H. F. Ferro, **L. F. O. Chamon**, and C. G. Lopes, “FIR-IIR adaptive filters hybrid combination,” *IET Electronics Letters*, vol. 50[7], pp. 501–503, 2014.

ML & SYSTEMS CONFERENCES

- [1] A. Robey, **L. F. O. Chamon**, G. J. Pappas, and H. Hassani, “Probabilistically robust learning: Balancing average- and worst-case performance,” in *International Conference on Machine Learning (ICML)*, 2022.
- [2] A. Robey*, **L. F. O. Chamon***, G. J. Pappas, H. Hassani, and A. Ribeiro, “Adversarial robustness with semi-infinite constrained learning,” in *Conference on Neural Information Processing Systems (NeurIPS)*, (* equal contribution), 2021.
- [3] L. Ruiz, **L. F. O. Chamon**, and A. Ribeiro, “Graphon neural networks and the transferability of graph neural networks,” in *Conference on Neural Information Processing Systems (NeurIPS)*, 2020.
- [4] **L. F. O. Chamon** and A. Ribeiro, “Probably approximately correct constrained learning,” in *Conference on Neural Information Processing Systems (NeurIPS)*, 2020.
- [5] S. Paternain, **L. F. O. Chamon**, M. Calvo-Fullana, and A. Ribeiro, “Constrained reinforcement learning has zero duality gap,” in *Conference on Neural Information Processing Systems (NeurIPS)*, 2019, pp. 7555–7565.
- [6] B. Arzani, S. Ciraci, **L. F. O. Chamon**, Y. Zhu, H. Liu, J. Padhye, B. T. Loo, and G. Outhred, “007: Democratically finding the cause of packet drops,” in *USENIX Symposium on Networked Systems Design and Implementation (NSDI)*, 2018, pp. 419–435.
- [7] B. Arzani, S. Ciraci, **L. F. O. Chamon**, Y. Zhu, H. Liu, J. Padhye, G. Outhred, and B. T. Loo, “Closing the network diagnostics gap with Vigil,” in *SIGCOMM (Poster)*, 2017, pp. 40–42.
- [8] **L. F. O. Chamon** and A. Ribeiro, “Approximate supermodularity bounds for experimental design,” in *Conference on Neural Information Processing Systems (NeurIPS)*, 2017, pp. 5403–5412.

CONTROL CONFERENCES

- [1] B. A. Angélico, **L. F. O. Chamon**, S. Paternain, A. Ribeiro, and G. J. Pappas, “Source seeking in unknown environments with convex obstacles,” in *American Control Conference*, 2021.
- [2] M. Calvo-Fullana, **L. F. O. Chamon**, and S. Paternain, “Towards safe continuing task reinforcement learning,” in *American Control Conference*, 2021.
- [3] **L. F. O. Chamon**, A. Amice, S. Paternain, and A. Ribeiro, “Resilient control: Compromising to adapt,” in *IEEE Control and Decision Conference*, 2020.
- [4] **L. F. O. Chamon**, S. Paternain, and A. Ribeiro, “Counterfactual programming for optimal control,” in *Learning for Dynamics & Control (L4DC)*, 2020.
- [5] A. Tsiamis, D. S. Kalogerias, **L. F. O. Chamon**, A. Ribeiro, and G. J. Pappas, “Risk-constrained linear-quadratic regulators,” in *IEEE Control and Decision Conference*, 2020.

- [6] S. Paternain, M. Calvo-Fullana, **L. F. O. Chamon**, and A. Ribeiro, “Learning safe policies via primal-dual methods,” in *IEEE Control and Decision Conference*, 2019, pp. 6491–6497.
- [7] V. L. Silva, **L. F. O. Chamon**, and A. Ribeiro, “Model predictive selection: A receding horizon scheme for actuator selection,” in *American Control Conference*, 2019, pp. 347–353.
- [8] **L. F. O. Chamon**, A. Amice, and A. Ribeiro, “Matroid-constrained approximately supermodular optimization for near-optimal actuator scheduling,” in *IEEE Control and Decision Conference*, 2019, pp. 3391–3398.
- [9] **L. F. O. Chamon**, G. Pappas, and A. Ribeiro, “The mean square error in Kalman filtering sensor selection is approximately supermodular,” in *IEEE Control and Decision Conference*, 2017, pp. 343–350.

SIGNAL PROCESSING CONFERENCES

- [1] L. Ruiz, **L. F. O. Chamon**, and A. Ribeiro, “Transferable graph neural networks on large-scale stochastic graphs,” in *Asilomar Conference on Signals, Systems and Computers*, 2021.
- [2] D. S. Kalogerias, **L. F. O. Chamon**, G. J. Pappas, and A. Ribeiro, “Better safe than sorry: Risk-aware nonlinear Bayesian estimation,” in *IEEE International Conference in Acoustic, Speech, and Signal Processing (ICASSP)*, 2020.
- [3] L. Ruiz, **L. F. O. Chamon**, and A. Ribeiro, “Graphon filters: Signal processing in very large graphs,” in *European Signal Processing Conference (EUSIPCO)*, 2020, pp. 1050–1054.
- [4] L. Ruiz, **L. F. O. Chamon**, and A. Ribeiro, “The graphon Fourier transform,” in *IEEE International Conference in Acoustic, Speech, and Signal Processing (ICASSP)*, 2020.
- [5] **L. F. O. Chamon**, S. Paternain, M. Calvo-Fullana, and A. Ribeiro, “The empirical duality gap of constrained statistical learning,” in *IEEE International Conference in Acoustic, Speech, and Signal Processing (ICASSP)*, 2020.
- [6] M. Eisen, C. Zhang, **L. F. O. Chamon**, D. D. Lee, and A. Ribeiro, “Dual domain learning of optimal resource allocations in wireless systems,” in *IEEE International Conference in Acoustic, Speech, and Signal Processing (ICASSP)*, 2019, pp. 4729–4733.
- [7] M. Peifer, **L. F. O. Chamon**, S. Paternain, and A. Ribeiro, “Sparse learning of parsimonious reproducing kernel Hilbert space models,” in *IEEE International Conference in Acoustic, Speech, and Signal Processing (ICASSP)*, 2019, pp. 3292–3296.
- [8] **L. F. O. Chamon**, Y. C. Eldar, and A. Ribeiro, “Sparse recovery over nonlinear dictionaries,” in *IEEE International Conference in Acoustic, Speech, and Signal Processing (ICASSP)*, 2019, pp. 4878–4882.
- [9] **L. F. O. Chamon**, S. Paternain, and A. Ribeiro, “Learning Gaussian processes with Bayesian posterior optimization,” in *Asilomar Conference on Signals, Systems and Computers*, 2019, pp. 482–486.
- [10] M. Eisen, C. Zhang, **L. F. O. Chamon**, D. D. Lee, and A. Ribeiro, “Online deep learning in wireless communication systems,” in *Asilomar Conference on Signals, Systems and Computers*, 2018, pp. 1289–1293.
- [11] M. Peifer, **L. F. O. Chamon**, S. Paternain, and A. Ribeiro, “Locally adaptive kernel estimation using sparse functional programming,” in *Asilomar Conference on Signals, Systems and Computers*, 2018, pp. 2022–2026.

- [12] **L. F. O. Chamon**, Y. C. Eldar, and A. Ribeiro, “Strong duality of sparse functional optimization,” in *IEEE International Conference in Acoustic, Speech, and Signal Processing (ICASSP)*, 2018, pp. 4739–4743.
- [13] **L. F. O. Chamon** and A. Ribeiro, “Finite-precision effects on graph filters,” in *IEEE Global Conference on Signal and Information Processing (GlobalSip)*, 2017, pp. 603–607.
- [14] **L. F. O. Chamon** and A. Ribeiro, “Universal bounds for the sampling of graph signals,” in *IEEE International Conference in Acoustic, Speech, and Signal Processing (ICASSP)*, 2017, pp. 3899–3903.
- [15] **L. F. O. Chamon** and A. Ribeiro, “Near-optimality of greedy set selection in the sampling of graph signals,” in *IEEE Global Conference on Signal and Information Processing (GlobalSip)*, 2016, pp. 1265–1269.
- [16] C. G. Lopes, **L. F. O. Chamon**, and V. H. Nascimento, “Towards spatially universal adaptive networks,” in *IEEE Global Conference on Signal and Information Processing (GlobalSip)*, 2014, pp. 803–807.
- [17] **L. F. O. Chamon** and C. G. Lopes, “There’s plenty of room at the bottom: Incremental combinations of sign-error LMS filters,” in *IEEE International Conference in Acoustic, Speech, and Signal Processing (ICASSP)*, 2014, pp. 7248–7252.
- [18] **L. F. O. Chamon** and C. G. Lopes, “On parallel-incremental combinations of LMS filters that outperform the Affine Projection Algorithm,” in *Brazilian Telecommunication Symposium (SBrT)*, 2013.
- [19] **L. F. O. Chamon** and C. G. Lopes, “Transient performance of an incremental combination of LMS filters,” in *European Signal Processing Conference (EUSIPCO)*, 2013, pp. 7298–7302.
- [20] **L. F. O. Chamon** and A. M. P. de Lucena, “Determination of the minimum distance between symbols of the two non-orthogonal M-QAM carriers,” in *Brazilian Telecommunication Symposium (SBrT)*, 2013.
- [21] R. F. Bittencourt, **L. F. O. Chamon**, S. Futatsugui, J. I. Yanagihara, and S. N. Y. Gerges, “Preliminary results on the modeling of aircraft vibroacoustic comfort,” in *INTERNOISE*, 2012.
- [22] **L. F. O. Chamon**, H. F. Ferro, and C. G. Lopes, “A data reuse algorithm based on incremental combination of LMS filters,” in *Asilomar Conference on Signals, Systems and Computers*, 2012, pp. 406–410.
- [23] **L. F. O. Chamon**, W. B. Lopes, and C. G. Lopes, “Combination of adaptive filters with coefficients feedback,” in *IEEE International Conference in Acoustic, Speech, and Signal Processing (ICASSP)*, 2012, pp. 3785–3788.
- [24] **L. F. O. Chamon** and C. G. Lopes, “Combination of adaptive filters for relative navigation,” in *European Signal Processing Conference (EUSIPCO)*, 2011, pp. 1771–1775.
- [25] **L. F. O. Chamon**, G. S. Quiqueto, S. R. Bistafa, and V. H. Nascimento, “An SVD-based MIMO equalizer applied to the auralization of aircraft noise in a cabin simulator,” in *18th International Congress on Sound and Vibration (ICSV)*, 2011.
- [26] G. S. Quiqueto, **L. F. O. Chamon**, and S. R. Bistafa, “Preliminary results on the development of an aircraft cabin N&V simulator,” in *II SAE Brazil International Noise and Vibration Congress*, 2010.

- [27] **L. F. O. Chamon**, G. S. Quiqueto, and S. R. Bistafa, “The application of the Singular Value Decomposition for the decoupling of the vibratory reproduction system of an aircraft cabin simulator,” in *II SAE Brazil International Noise and Vibration Congress*, 2010.