

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 fellow 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 for “The empirical duality gap of constrained statistical learning.”
- **2020:** Best paper award at IEEE ICASSP 2020 for “Better safe than sorry: Risk-aware nonlinear Bayesian estimation.”
- **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. URL: <https://arxiv.org/abs/2210.00301>.
- [2] I. Hounie, **L. F. O. Chamon**, and A. Ribeiro. Automatic data augmentation via invariance-constrained learning, 2022. URL: <https://arxiv.org/abs/2209.15031>.
- [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. URL: <https://arxiv.org/abs/2102.11941>.
- [4] L. Ruiz, **L. F. O. Chamon**, and A. Ribeiro. Transferability properties of graph neural networks, 2021. URL: <https://arxiv.org/abs/2112.04629>.
- [5] **L. F. O. Chamon**, S. Paternain, and A. Ribeiro. Trust but verify: Assigning prediction credibility by counterfactual constrained learning, 2020. URL: <https://arxiv.org/abs/2011.12344>.
- [6] **L. F. O. Chamon** and C. G. Lopes. Combination of LMS adaptive filters with coefficients feedback. *arXiv*, 2016. URL: <https://arxiv.org/abs/1608.03248>.

PATENTS

- [1] D. Lamb, **L. F. O. Chamon**, V. H. Nascimento, and A. Spirer. Sparse cascaded-integrator-comb filters, 2019. URL: <https://patents.google.com/patent/US10367477B2>. US10367477B2.

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. DOI: [10.1109/TAC.2022.3152724](https://arxiv.org/abs/1911.09101). URL: <https://arxiv.org/abs/1911.09101>.
- [2] **L. F. O. Chamon**, A. Amice, and A. Ribeiro. Approximately supermodular scheduling subject to matroid constraints. *IEEE Trans. on Autom. Control.*, 67[3]:1384–1396, 2022. DOI: [10.1109/TAC.2021.3071024](https://arxiv.org/abs/2003.08841). URL: <https://arxiv.org/abs/2003.08841>.
- ★ [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. DOI: [10.1109/TIT.2022.3187948](https://arxiv.org/abs/2103.05134). URL: <https://arxiv.org/abs/2103.05134>.
- [4] L. Ruiz, **L. F. O. Chamon**, and A. Ribeiro. Graphon signal processing. *IEEE Trans. on Signal Process.*, 69:4961–4976, 2021. DOI: [10.1109/TSP.2021.3106857](https://arxiv.org/abs/2003.05030). URL: <https://arxiv.org/abs/2003.05030>.
- [5] **L. F. O. Chamon**, G. J. Pappas, and A. Ribeiro. Approximate supermodularity of Kalman filter sensor selection. *IEEE Trans. on Autom. Control.*, 66[1]:49–63, 2021. DOI: [10.1109/TAC.2020.2973774](https://arxiv.org/abs/1912.03799). URL: <https://arxiv.org/abs/1912.03799>.

- [6] M. Peifer, **L. F. O. Chamon**, S. Paternain, and A. Ribeiro. Sparse multiresolution representations with adaptive kernels. *IEEE Trans. on Signal Process.*, 68[1]:2031–2044, 2020. DOI: [10.1109/TSP.2020.2976577](https://doi.org/10.1109/TSP.2020.2976577). URL: <https://arxiv.org/abs/1905.02797>.
- ★ [7] **L. F. O. Chamon**, Y. C. Eldar, and A. Ribeiro. Functional nonlinear sparse models. *IEEE Trans. on Signal Process.*, 68[1]:2449–2463, 2020. DOI: [10.1109/TSP.2020.2982834](https://doi.org/10.1109/TSP.2020.2982834). URL: <https://arxiv.org/abs/1811.00577>.
- ★ [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.*, 67[10]:2775–2790, 2019. DOI: [10.1109/TSP.2019.2908906](https://doi.org/10.1109/TSP.2019.2908906). URL: <https://arxiv.org/abs/1807.08088>.
- [9] **L. F. O. Chamon** and A. Ribeiro. Greedy sampling of graph signals. *IEEE Trans. on Signal Process.*, 66[1]:34–47, 2018. DOI: [10.1109/TSP.2017.2755586](https://doi.org/10.1109/TSP.2017.2755586). URL: <https://arxiv.org/abs/1704.01223>.
- [10] D. Lamb, **L. F. O. Chamon**, and V. H. Nascimento. An efficient filtering structure for spline interpolation and decimation. *IET Electronics Letters*, 52[1]:39–41, 2016. DOI: [10.1049/el.2015.1957](https://doi.org/10.1049/el.2015.1957).
- [11] H. F. Ferro, **L. F. O. Chamon**, and C. G. Lopes. FIR-IIR adaptive filters hybrid combination. *IET Electronics Letters*, 50[7]:501–503, 2014. DOI: [10.1049/el.2014.0248](https://doi.org/10.1049/el.2014.0248).

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. URL: <https://arxiv.org/abs/2202.01136>.
- ★ [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)*, 2021. URL: <https://arxiv.org/abs/2110.15767>. (* equal contribution).
- [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. URL: <https://arxiv.org/abs/2006.03548>.
- [4] **L. F. O. Chamon** and A. Ribeiro. Probably approximately correct constrained learning. In *Conference on Neural Information Processing Systems (NeurIPS)*, 2020. URL: <https://arxiv.org/abs/2006.05487>.
- ★ [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)*, pages 7555–7565, 2019. URL: <https://arxiv.org/abs/1910.13393>.
- [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)*, pages 419–435, 2018. URL: <https://arxiv.org/abs/1802.07222>.
- [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)*, pages 40–42, 2017.
- [8] **L. F. O. Chamon** and A. Ribeiro. Approximate supermodularity bounds for experimental design. In *Conference on Neural Information Processing Systems (NeurIPS)*, pages 5403–5412, 2017. URL: <https://arxiv.org/abs/1711.01501>.

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. URL: <https://arxiv.org/abs/1909.07496>.
- [2] M. Calvo-Fullana, **L. F. O. Chamon**, and S. Paternain. Towards safe continuing task reinforcement learning. In *American Control Conference*, 2021. URL: <https://arxiv.org/abs/2102.12585>.
- [3] **L. F. O. Chamon**, A. Amice, S. Paternain, and A. Ribeiro. Resilient control: Compromising to adapt. In *IEEE Control and Decision Conference*, 2020. URL: <https://arxiv.org/abs/2004.03726>.
- [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. Kalogierias, **L. F. O. Chamon**, A. Ribeiro, and G. J. Pappas. Risk-constrained linear-quadratic regulators. In *IEEE Control and Decision Conference*, 2020. URL: <https://arxiv.org/abs/2004.04685>.
- [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*, pages 6491–6497, 2019.
- [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*, pages 347–353, 2019.
- [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*, pages 3391–3398, 2019.
- [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*, pages 343–350, 2017.

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. Kalogierias, **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. URL: <https://arxiv.org/abs/1912.02933>.
- [3] L. Ruiz, **L. F. O. Chamon**, and A. Ribeiro. Graphon filters: Signal processing in very large graphs. In *European Signal Processing Conference (EUSIPCO)*, pages 1050–1054, 2020.
- [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. URL: <https://arxiv.org/abs/1910.10195>.
- [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. URL: <https://arxiv.org/abs/2002.05183>.
- [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)*, pages 4729–4733, 2019.

- [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)*, pages 3292–3296, 2019.
- [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)*, pages 4878–4882, 2019.
- [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*, pages 482–486, 2019.
- [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*, pages 1289–1293, 2018.
- [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*, pages 2022–2026, 2018.
- [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)*, pages 4739–4743, 2018.
- [13] **L. F. O. Chamon** and A. Ribeiro. Finite-precision effects on graph filters. In *IEEE Global Conference on Signal and Information Processing (GlobalSip)*, pages 603–607, 2017.
- [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)*, pages 3899–3903, 2017.
- [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)*, pages 1265–1269, 2016.
- [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)*, pages 803–807, 2014.
- [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)*, pages 7248–7252, 2014.
- [18] **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.
- [19] **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.
- [20] **L. F. O. Chamon** and C. G. Lopes. Transient performance of an incremental combination of LMS filters. In *European Signal Processing Conference (EUSIPCO)*, pages 7298–7302, 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*, pages 406–410, 2012.
- [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)*, pages 3785–3788, 2012.
- [24] **L. F. O. Chamon** and C. G. Lopes. Combination of adaptive filters for relative navigation. In *European Signal Processing Conference (EUSIPCO)*, pages 1771–1775, 2011.
- [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.