

# LUIZ F. O. CHAMON

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## 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.
- [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. DOI: [10.1109/TAC.2022.3152724](#).
- [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. DOI: [10.1109/TAC.2021.3071024](#).
- ★ [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](#).
- [4] L. Ruiz, **L. F. O. Chamon**, and A. Ribeiro, “Graphon signal processing,” *IEEE Trans. on Signal Process.*, vol. 69, pp. 4961–4976, 2021. DOI: [10.1109/TSP.2021.3106857](#).
- [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. DOI: [10.1109/TAC.2020.2973774](#).
- [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. DOI: [10.1109/TSP.2020.2976577](#).

- ★ [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. DOI: [10.1109/TSP.2020.2982834](https://doi.org/10.1109/TSP.2020.2982834).
- ★ [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. DOI: [10.1109/TSP.2019.2908906](https://doi.org/10.1109/TSP.2019.2908906).
- [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. DOI: [10.1109/TSP.2017.2755586](https://doi.org/10.1109/TSP.2017.2755586).
- [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. 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*, vol. 50[7], pp. 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.
- ★ [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.