

Victoria Menescal Tupper Palhares

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EXPERIENCE

Integrated Systems Laboratory, ETH Zurich

Oct'20 - Present

Integrated Information Processing (IIP) Group, Graduate Research Assistant Zurich - Switzerland

- Research on user positioning using self-supervised machine learning tools.
- Research on adaptive analog spatial transforms for massive MU-MIMO systems with high dynamic range users and low-resolution ADCs.
- Research on an optimization-based user scheduling framework for the next-generation wireless systems.

Center for Telecommunications Studies, PUC Rio

Aug'18 - Aug'20

Communications Systems Laboratory, Graduate Research Assistant Rio de Janeiro - RJ, Brazil

- Development of an MMSE precoder and a robust MMSE precoder, with power allocation and access point selection for cell-free massive MIMO systems.
- Development of convex optimization algorithms using CVX software.

Center for Telecommunications Studies, PUC Rio

Aug'17 - Aug'18

Microwave Laboratory, Undergraduate Research Assistant Rio de Janeiro - RJ, Brazil

- Design of a wireless power transfer device to be coupled with antennas and set with metamaterials.
- Amplification system design using Advanced Design System (ADS).

Huawei Technologies

Oct'16 - Aug'17

Microwave Team, Intern Rio de Janeiro - RJ, Brazil

- Management of large-scale telecommunications networks.
- Work in line of sight simulations for microwave network planning.

University of California, Irvine

May 16 - Aug'16

Cooperative Systems Lab, Summer Research Assistant Irvine - CA, United States

- Study of a ROS implementation of SLAM in ground co-robots.

Department of Electrical Engineering, PUC Rio

Aug'14 - Aug'15

TraLP Project, Undergraduate Research Assistant Rio de Janeiro - RJ, Brazil

- Development of an app capable of performing Libras (Brazilian Sign Language) to Portuguese and Portuguese to Libras translation, for Android, Windows Phone, and iOS platforms.
- Development of the database and website of the project, using DB2, Microsoft Excel, and Access softwares and HTML, PHP, CSS, JavaScript, and SQL programming languages.

Riobotz, PUC Rio

Aug'13 - Aug'15

Robotics Laboratory, Electronics Team Member Rio de Janeiro - RJ, Brazil

- Research on new components: speed controllers, DC Motors, batteries, radio transmitters, and receivers.
- Tasks included soldering, electronic components maintenance, and programming.
- Gave soldering workshops for new members in the team.
- Participation in international and national competitions including RoboGames 2014 (United States), Campus Party 2015 (Brazil), Campus Party 2014 (Brazil), and Winter Challenge (Brazil).

EDUCATION

ETH Zurich, Zurich, Switzerland Oct'20 - Present
Ph.D. Candidate
Department of Information Technology and Electrical Engineering (D-ITET)
Advisor: Prof. Dr. Christoph Studer
Coursework: Machine Learning, VLSI, Communication Networks

Pontifical Catholic University of Rio de Janeiro (PUC Rio), RJ, Brazil Aug'18 - Aug'20
Master of Science in Electrical Engineering Research Area: Communications Systems
Center of Telecommunication Studies (CETUC)
Advisor: Prof. Dr. Rodrigo C. de Lamare
Master Thesis: "Precoding and Resource Allocation for Cell-Free Massive MIMO Systems"
Coursework: MIMO Systems, Convex Optimization, Information Theory, Adaptive Systems

Pontifical Catholic University of Rio de Janeiro (PUC Rio), RJ, Brazil Mar'13 - Jul'18
Bachelor of Science in Electrical Engineering Emphasis: Electronics & Computers
Advisor: Prof. Dr. Glaucio Siqueira
Bachelor Thesis: "Power Amplifier for Inductive Wireless Power Transmission System"

University of Colorado, Colorado Springs, CO, USA Aug'15 - May'16
Electrical Engineering, non-degree international exchange student

PUBLICATIONS

- S. Taner, V. Palhares, and C. Studer, "Channel Charting in Real-World Coordinates," to be presented in *IEEE Global Communications Conference (GLOBECOM) 2023*, Kuala Lumpur, Malaysia, December 2023.
- V. Palhares, G. Marti, O. Castaneda, and C. Studer, "High Dynamic Range mmWave Massive MU-MIMO with Householder Reflections," to be presented in *Asilomar Conference on Signals, Systems, and Computers 2023*, Pacific Grove, United States, November 2023.
- J. Brun, V. Palhares, G. Marti, and C. Studer, "Beam Alignment for the Cell-Free mmWave Massive MU-MIMO Uplink," in *IEEE Workshop on Signal Processing Systems (SiPS) 2022*, Rennes, France, November 2022, doi: 10.1109/SiPS55645.2022.9919259.
- V. Palhares and C. Studer, "An Optimization-Based User Scheduling Framework for mmWave Massive MU-MIMO Systems," in *IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC) 2022*, Oulu, Finland, July 2022, doi: 10.1109/SPAWC51304.2022.9833954.
- V. M. T. Palhares, R. C. de Lamare, A. R. Flores and L. T. N. Landau, "Iterative MMSE Precoding and Power Allocation in Cell-Free Massive MIMO Systems," in *IEEE Statistical Signal Processing Workshop (SSP) 2021*, Rio de Janeiro, Brazil, July 2021, doi: 10.1109/SSP49050.2021.9513855.
- V. M. T. Palhares, A. R. Flores and R. C. de Lamare, "Robust MMSE Precoding and Power Allocation for Cell-Free Massive MIMO Systems," in *IEEE Transactions on Vehicular Technology*, vol. 70, no. 5, pp. 5115-5120, May 2021, doi: 10.1109/TVT.2021.3072828.
- V. M. T. Palhares, R. C. de Lamare, A. R. Flores and L. T. N. Landau, "Iterative AP Selection, MMSE Precoding and Power Allocation in Cell-Free Massive MIMO Systems," *IET Communications*, vol. 14, no. 22, pp. 3996-4006, December 2020, doi: 10.1049/iet-com.2020.0627.
- V. M. T. Palhares, R. C. de Lamare, A. R. Flores and L. T. N. Landau, "Seleção de Pontos de Acesso, Pré-Codificação MMSE e Alocação de Potência Iterativa para Sistemas de Múltiplas Antenas Livres de Células," in *XXXVIII Brazilian Telecommunications and Signal Processing Symposium (SBrT) 2020*, Florianópolis, Brazil, November 2020.

- V. M. T. Palhares, M. Krieger and S. La Porta, “Estruturação de registro de Libras em computador, para reconhecimento de sinais e animação de Avatares,” in *International Workshop on Assistive Technology (IWAT) 2015*, Vitória, Brazil, February 2015.

ACADEMIC SUPERVISION & TEACHING ACTIVITIES

Academic Supervision

ETH Zurich

Zurich - Switzerland

- Sep’23 - Dec’23: Tanyu Jiang, M.S. semester project, “Channel Charting with Recurrent Neural Networks”. Co-supervised with Sueda Taner and Prof. Dr. Christoph Studer.
- Aug’22 - Feb’23: Lingrui He, M.S. thesis, “Propagation Model-Informed Channel Charting”. Co-supervised with Sueda Taner and Prof. Dr. Christoph Studer.
- Mar’22 - Jun’22: Lingrui He, M.S. semester project, “Machine-Learning-Assisted Passive Channel Charting”. Co-supervised with Sueda Taner and Prof. Dr. Christoph Studer.
- Oct’21 - Apr’22: Jannik Brun, M.S. thesis, “Cell-Free mmWave Massive MIMO Systems: Beam Selection and User Localization”. Co-supervised with Gian Marti and Prof. Dr. Christoph Studer.

Teaching

ETH Zurich

Zurich - Switzerland

- Spring 2022 - Spring 2023: Teaching Assistant for Wireless Communications. Short lectures, exercise preparation, and grading.
- Fall 2020 - Fall 2022: Grader for Electrical Engineering II.

University of Colorado, Colorado Springs

Colorado Springs - USA

- Spring 2016: Portuguese teacher for American students preparing for summer research in Portugal.

SKILLS

Operating Systems:	macOS, Linux, Microsoft Windows
Programming Languages:	MATLAB, Python, L ^A T _E X, C, Verilog, VHDL, HTML, PHP, CSS, JavaScript, SQL
Softwares:	MATLAB, CVX, Advanced Design System, Microsoft Office Package (Excel, Word, PowerPoint, Outlook, Access), AutoCAD, DB2, Maple
Languages:	Portuguese, Native English, Advanced, TOEFL iBT score: 115/120, CAE (C1 Level) French, Advanced, DALF C1 (C1 Level) German, Basic (A2 Level) Spanish, Basic

AWARDS

Science Without Borders Scholarship

Ago’15 - Ago’16

Coordination of Superior Level Staff Improvement (CAPES)

- One-year exchange program in the US funded by the Brazilian government.

Pontifical Catholic University of Rio de Janeiro

Jul’13

Introduction to Engineering class

Rio de Janeiro - RJ, Brazil

- Academic Honor, Top Students in Class.

- Honorable Mention.

PROFESSIONAL ACTIVITIES

Review Activities

Reviewer for the following journals (alphabetical order):

- IEEE Access
- IEEE Communications Letters
- IEEE Transactions on Communications
- IEEE Transactions on Circuits and Systems II: Express Briefs

Reviewer for the following conferences:

- IEEE International Symposium on Circuits and Systems (ISCAS) 2023
- IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC) 2022
- IEEE International Conference on Communications (ICC) 2022
- IEEE Information Theory Workshop (ITW) 2021
- IEEE Vehicular Technology Conference (VTC) 2021 Spring

Memberships

- IEEE Graduate Student Member since May 2022.
- Participated in the foundation of the Brazilian Metamaterials Society (SBMETA) in December 2017.