

# Victoria Palhares

Stampfenbachstrasse 68, 8006 Zurich, Switzerland ◊ +41 78 301 99 65

palhares@iis.ee.ethz.ch ◊ www.linkedin.com/in/victoria-palhares

## EXPERIENCE

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### **Integrated Systems Laboratory, ETH Zurich**

Oct'20 - Present

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

- Research on user positioning using supervised and self-supervised machine learning techniques in PyTorch. Development of adaptive analog spatial transforms for mmWave massive MU-MIMO systems with high dynamic range users and low-resolution ADCs using MATLAB. Development of an optimization-based user scheduling framework for the next-generation wireless systems using MATLAB. Ray-tracing simulations with Wireless InSite.

### **Department of Electrical Engineering, 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 using MATLAB. Implementation of convex optimization algorithms using CVX.

### **Department of Electrical Engineering, PUC Rio**

Aug'17 - Aug'18

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

- Fabrication of a PCB for an RF amplifier to be connected to inductive coupling coils for wireless power transfer. RF circuit design in Advanced Design System (ADS) and experiments using metamaterials.

### **Huawei Technologies**

Oct'16 - Aug'17

*Microwave Team, Intern Rio de Janeiro - RJ, Brazil*

- Planning of large communication networks, e.g., base station deployment, and selection of antennas and radio equipment. Performed line-of-sight (LoS) simulations for microwave network planning.

### **University of California, Irvine**

May 16 - Aug'16

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

- Development of an interface for Parrot AR Drone 2.0 and TurtleBot to work under ROS. Development of an algorithm using Kinect for distance analysis and collision avoidance.

### **Department of Electrical Engineering, PUC Rio**

Aug'14 - Aug'15

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

- Project of translation app from Portuguese to Brazilian Sign Language. Development of the vocabulary database and website of the project, using IBM DB2, Microsoft Excel, and Access software 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.

## EDUCATION

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**ETH Zurich** Oct'20 - Present  
*Ph.D. Candidate in Information Technology and Electrical Engineering* Zurich, Switzerland

Selected Courses: Probabilistic AI, VLSI I, Introd. to ML, and Commun. Networks.

**Pontifical Catholic University of Rio de Janeiro (PUC Rio)** Aug'18 - Aug'20  
*Master of Science in Electrical Engineering* Rio de Janeiro, Brazil

Master Thesis: "Precoding and Resource Allocation for Cell-Free Massive MIMO Systems"

Selected Courses: Non-Linear Prog., MIMO Syst., Adaptive Syst., and Stochastic Processes.

**Pontifical Catholic University of Rio de Janeiro (PUC Rio)** Mar'13 - Jul'18  
*Bachelor of Science in Electrical Engineering, Electronics & Computers* Rio de Janeiro, Brazil

Bachelor Thesis: "Power Amplifier for Inductive Wireless Power Transmission System"

Selected Courses: Dig. Transm. Syst., Microwave Devices, Antennas, Analog Electron., Dig. Comp.

**University of Colorado, Colorado Springs** Aug'15 - May'16  
*Exchange Program, Bachelor of Science in Electrical Engineering* Colorado Springs, USA

Selected Courses: Logic Circuits, Introd. to Microcomp. Syst., Comp. Archit., and Circuits & Syst.

## SKILLS

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| <b>Operating Systems:</b>     | macOS, Linux, Microsoft Windows  |
| <b>Programming Languages:</b> | Python, PyTorch, NumPy, TensorFlow, MATLAB, CVX, C<br>SystemVerilog, VHDL, $\LaTeX$  |
| <b>Software:</b>              | Visual Studio Code, MATLAB, Wireless InSite, Vivado,<br>Advanced Design System, ModelSim, Microsoft Office   |
| <b>Languages:</b>             | Portuguese (Native), English (Fluent, TOEFL iBT score:<br>115/120, CAE (C1)), French (Advanced, DALF C1), German<br>(Intermediate (B1)), Spanish (Basic) |

## TEACHING ACTIVITIES

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### ETH Zurich

- Teaching assistant in the lecture "Wireless Communications". Feb' 22 - Present
- Supervisor of 3 Master Theses and 2 Master's Semester Projects Oct' 21 - Present

## PUBLICATIONS

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- A. Gallyas-Sanhueza, G. Marti, **V. Palhares**, R. Wiesmayr, and C. Studer, "LoFi User Scheduling for Multiuser MIMO Wireless Systems," to be presented in *IEEE Int. Conf. on Acoustics, Speech, and Signal Process. (ICASSP) 2024*, Apr. 2024.
- S. Taner, **V. Palhares**, and C. Studer, "Channel Charting in Real-World Coordinates," in *IEEE Global Commun. Conf. (GLOBECOM)*, Dec. 2023.
- **V. Palhares**, G. Marti, O. Castaneda, and C. Studer, "High Dynamic Range mmWave Massive MU-MIMO with Householder Reflections," in *Asilomar Conf. on Signals, Syst., and Comput.*, Nov. 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 Process. Syst. (SiPS)*, Nov. 2022.

- **V. Palhares** and C. Studer, “An Optimization-Based User Scheduling Framework for mmWave Massive MU-MIMO Systems,” in *IEEE Int. Workshop on Signal Process. Advances in Wireless Commun. (SPAWC)*, Jul. 2022.
- **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 Stat. Signal Process. Workshop (SSP)*, Jul. 2021.
- **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 Trans. on Veh. Technol.*, vol. 70, no. 5, pp. 5115-5120, May 2021.
- **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 Commun.*, vol. 14, no. 22, pp. 3996-4006, Dec. 2020.