

Rubem Vasconcelos Pacelli

GENERAL INFORMATION

Fortaleza, Ceará, Brazil
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CAREER SUMMARY

Skilled engineer with a multidisciplinary background in

- Modulation/synchronization theory, symbol detection, and statistical signal processing.
- Machine learning and neural networks.
- Field Programmable Gate Array (FPGA).

EDUCATION

MSc in Teleinformatics Engineering <i>Universidade Federal do Ceará (UFC)</i>	Jan 2019 – present <i>Fortaleza, Brazil</i>
BSc in Electronic Engineering <i>Universidade de Fortaleza (Unifor)</i>	Jan 2013 – Dec 2018 <i>Fortaleza, Brazil</i>

EXPERIENCE

E.1 IRD–UFC research partnership <i>Universidade Federal do Ceará (UFC)</i>	Jun 2019 – present <i>Fortaleza, Brazil</i>
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- Research student.
- Research on Machine Learning, Neural networks, and statistical signal processing.
- Developed a research project in collaboration with the IRD (*Research Institute Pour Le Développement*, France).

RESEARCH FUNDING AND PROJECTS

Pr1. Research and development of fully digital modems for satellite applications Master Scholarship from Coordination for the Improvement of Higher Education Personnel (CAPES)	Jun 2019 – present
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- Fully digital modem for satellite application, aiming at its implementation in FPGA.
- Design of the logical scheme of the modulator and demodulator system.
- Development of synchronization modules for the symbol time offset and phase offset.

Pr2. Non-Coherent GMSK Demodulator for Cubesat Application Scientific Initiation Scholarship from National Council of Scientific and Technological Development (CNPq)	Feb 2017 – Jan 2018
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- Development of Non-Coherent GMSK Demodulator for Cubesat Application

Pr3. Synchronization in OFDM systems Scientific Initiation Scholarship from National Council of Scientific and Technological Development (CNPq)	Feb 2016 – Jan 2017
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- Research on synchronization techniques applied to OFDM systems.

Pr4. Synchronization of signals with multicarrier Scientific Initiation Scholarship from National Council of Scientific and Technological Development (CNPq)	Feb 2015 – Jan 2016
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- Research on synchronization techniques applied to multicarrier systems.

TECHNICAL SKILLS

Technical

- Python and its data science ecosystem (Panda, Numpy, Scikit-Learn, Scipy, ...).
- MATLAB/Simulink, C, C++, Java, Assembly, VHDL.
- Git, MicroSoft Office, and \LaTeX .
- Web scraping, Regex, and RPA (Robotic Process Automation).
- Mathematical animations engine for teaching/presentation purpose: [Manim](#).

Language

- English: Full professional working proficiency.
- French: Elementary knowledge.
- Portuguese: Native speaker.

TEACHING AND SUPPORT

I have experience as an assistant teacher in the Control Theory course at the Universidade de Fortaleza (UNIFOR), during my undergraduate course in Electronic Engineering.

ACADEMIC ACTIVITY & MEMBERSHIP

Associate Member

- Brazilian Telecommunications Society (SBrT)

PUBLICATIONS

My academic publications are also listed on [Google scholar](#).

Teses

- Bachelor's Thesis, "Projeto de um conversor para carregador portátil com interface USB tipo-C.". Advised by prof. Bruno Ricardo de Almeida. Universidade de Fortaleza (UNIFOR).

Journal Articles

- J1.** *Pacelli, R. V.; Lucena, A. M. P. .* [OFDM system with frequency and phase estimators for carrier synchronization](#) (in Portuguese). Revista Tecnologia, v. p. 40, 1-16, 2019.
- J2.** *Figueiredo, S. S. ; Lucena, A. M. P. ; Pacelli, R. V. .* [Carrier selection technique for OFDM system in time-dispersive channels](#) (in Portuguese). Brazilian Journal of Development, v. 6, p. 14318-14324, 2020.
- J3.** *Pacelli, R. V.; Lucena, A. M. P. .* [Fully digital GMSK modem with non-coherent demodulation](#) (in Portuguese). Brazilian Journal of Development, v. 6, p. 17988-17996, 2020.
- J4.** *Pacelli, R. V.; Lucena, A. M. P. ; Figueiredo, S. S. .* [Carrier synchronization technique for OFDM communication systems](#) (in Portuguese). Brazilian Journal of Development, v. 6, p. 14297-14305, 2020.

Conference Proceedings

- C1.** *Pacelli, R. V. ; Lucena, A. M. P. ; Mota J. C. M..* [All-digital AFSK modem with Viterbi detection for TT&C CubeSat transceiver](#). In: XXXVIII Simpósio Brasileiro de Telecomunicações e Processamento de Sinais - SBrT 2020, 2020.
- C2.** *Mourao, J. A. ; Lucena, A. M. P. ; Araujo, D. C. ; Pacelli, R. V. .* [A technique for frequency synchronization in OFDM modulation](#) (in Portuguese). In: Encontros Científicos 2016, Fortaleza. XXII - Encontro de iniciação à pesquisa, 2016. v. XXII.
- C3.** *Pacelli, R. V.; Lucena, A. M. P. ; Araujo, D. C. ; Mourao, J. A. .* [Symbol time synchronization in OFDM systems](#) (in Portuguese). In: Encontros Científicos. In: XXII Encontro de Iniciação à Pesquisa, 2016.

- C4.** *Pacelli, R. V.; Pontes, H. P. .* [Eficiência energética na área de programação paralela](#). In: Encontros Científicos, 2015, Fortaleza. XXI Encontro de iniciação à Pesquisa, 2015.

Book Chapter

- BC1.** *Pacelli, R. V. ; Lucena, A. M. P..* GMSK modem with non-coherent demodulation and all-digital implementation (in Portuguese), chapter in Catapan, E. A (Org). Os impactos de estudos voltados para as ciências exatas. Brazilian Journals Editora, 2020, v. 01, 1st ed, p. 21-30.