

Rubem Vasconcelos Pacelli

GENERAL INFORMATION

Fortaleza, Ceará, Brazil
Universidade Federal de Ceará (UFC)
[UFC-PPGETI-GPSI](#)

Last updated: February 27, 2021
Mobile : +55 85 981824344
Other sources of contacts/information: [in](#), [✉](#), [g](#), [v](#), [id](#)

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> <ul style="list-style-type: none">• Research student.• Research on Machine Learning, Neural networks, and statistical signal processing.• Developed a research project in collaboration with the IRD (<i>Research Institute Pour Le Développement, France</i>).	Jun 2019 – present <i>Fortaleza, Brazil</i>
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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) <ul style="list-style-type: none">• 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.	Jun 2019 – present
Pr2. Non-Coherent GMSK Demodulator for Cubesat Application Scientific Initiation Scholarship from National Council of Scientific and Technological Development (CNPq) <ul style="list-style-type: none">• Development of Non-Coherent GMSK Demodulator for Cubesat Application	Feb 2017 – Jan 2018
Pr3. Synchronization in OFDM systems Scientific Initiation Scholarship from National Council of Scientific and Technological Development (CNPq) <ul style="list-style-type: none">• Research on synchronization techniques applied to OFDM systems.	Feb 2016 – Jan 2017
Pr4. Synchronization of signals with multicarrier Scientific Initiation Scholarship from National Council of Scientific and Technological Development (CNPq) <ul style="list-style-type: none">• Research on synchronization techniques applied to multicarrier systems.	Feb 2015 – Jan 2016

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](#).

Languages

- Portuguese: Native speaker.
- English: Full professional working proficiency ([Level B2 on the TOEFL exam](#)).
- French: Elementary knowledge.

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.; 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.
- BC2.** *Pacelli, R. V.; Lucena, A. M. P. ; Araujo, D. C. ; Mourao, J. A..* [Symbol time synchronization in OFDM systems](#) (in Portuguese). Chapter in Francisco Odécio Sales (Org). Ciências Exatas e da Terra: Exploração e Qualificação de Diferentes Tecnologias 4. Atena Editora, 2021, v. 4, p. 200-207.