

Rubem Vasconcelos Pacelli

GENERAL INFORMATION

Fortaleza, Ceará, Brazil
Universidade Federal de Ceará (UFC)
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CAREER SUMMARY

Skilled engineer with a multidisciplinary background in

- Statistical signal processing and non-linear system identification.
- Machine learning, neural networks and pattern recognition.
- FPGA (Field Programmable Gate Array) and DSP (Digital Signal Processor).

EDUCATION

PhD in Teleinformatics Engineering <i>Universidade Federal do Ceará (UFC)</i>	Jul 2021 – Present <i>Fortaleza, Brazil</i>
MSc in Teleinformatics Engineering <i>Universidade Federal do Ceará (UFC)</i>	Jan 2019 – Jun 2021 <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>
<ul style="list-style-type: none">• 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</i>, 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 – Jun 2021
<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.	
Pr2. Non-Coherent GMSK Demodulator for Cubesat Application Scientific Initiation Scholarship from National Council of Scientific and Technological Development (CNPq)	Feb 2017 – Jan 2018
<ul style="list-style-type: none">• 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
<ul style="list-style-type: none">• 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
<ul style="list-style-type: none">• Research on synchronization techniques applied to multicarrier systems.	

SKILLS

Technical

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

Languages

- English: Professional working proficiency ([Level B2 on TOEFL IBT](#). Total score: 74 out of 120).
- Portuguese: Native speaker.

TEACHING AND SUPPORT

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

I have experience as an assistant teacher in Digital Signal processing at the Federal University of Ceara, during my master's degree in Teleinformatics Engineering.

ACADEMIC ACTIVITY & MEMBERSHIP

Associate Member

- Brazilian Telecommunications Society (SBrT)

PUBLICATIONS

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

Theses

- Master's thesis (in Portuguese), "[Modem AFSK coerente e completamente digital para módulo TT&C padrão CubeSat](#)". Advised by prof. João Cesar Moura Mota and Antônio Macilio Pereira de Lucena.
- Bachelor's thesis (in Portuguese), "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.

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 Sales F. O. (Org). Ciências Exatas e da Terra: Exploração e Qualificação de Diferentes Tecnologias 4. Atena Editora, 2021, v. 4, p. 200-207.