

# Rubem Vasconcelos Pacelli

## GENERAL INFORMATION

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

Email : [rubem.engenharia@gmail.com](mailto:rubem.engenharia@gmail.com)  
Mobile : +55 85 981824344  
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## CAREER SUMMARY

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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

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

## EXPERIENCE

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<b>IRD–UFC research partnership</b> <i>Universidade Federal do Ceará (UFC)</i> <ul style="list-style-type: none"><li>• Research student.</li><li>• Developed a research project in collaboration with the IRD (<i>Research Institute Pour Le Développement</i>).</li><li>• Research on Machine Learning, Neural networks, and statistical signal processing.</li></ul>	Jun 2019 – Present <i>Fortaleza, Brazil</i>
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## RESEARCH PROJECTS

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Research and development of fully digital modems for satellite applications <ul style="list-style-type: none"><li>• Fully digital modem for satellite application, aiming at its implementation in FPGA.</li><li>• Design of the logical scheme of the modulator and demodulator system.</li></ul>	Feb 2019 – Present
Non-Coherent GMSK Demodulator for Cubesat Application <ul style="list-style-type: none"><li>• Development of Non-Coherent GMSK Demodulator for Cubesat Application</li></ul>	Feb 2017 – Jan 2018
Synchronization in OFDM systems <ul style="list-style-type: none"><li>• Research on synchronization techniques applied to OFDM systems.</li></ul>	Feb 2016 – Jan 2017
Synchronization of signals with multicarrier <ul style="list-style-type: none"><li>• Research on synchronization techniques applied to multicarrier systems.</li></ul>	Feb 2015 – Jan 2016

## TECHNICAL SKILLS

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### Technical

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

### Language

- English: Full professional working proficiency.
- Portuguese: Native speaker.

## TEACHING AND SUPPORT

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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.

## PUBLICATIONS

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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).

### Papers

- *Pacelli, R. V.; Lucena, A. M. P. . Sistema OFDM com estimadores de frequência e de fase para sincronização de portadora.* Revista Tecnologia, v. p. 40, 1-16, 2019.
- *Figueiredo, S. S. ; Lucena, A. M. P. ; Pacelli, R. V. . Técnica de Seleção de Portadoras para Sistema OFDM em Canais Dispersivos no Tempo.* Brazilian Journal of Development, v. 6, p. 14318-14324, 2020.
- *Pacelli, R. V.; Lucena, A. M. P. . Modem GMSK completamente digital com demodulação não-coerente.* Brazilian Journal of Development, v. 6, p. 17988-17996, 2020.
- *Pacelli, R. V.; Lucena, A. M. P. ; Figueiredo, S. S. . Técnica de sincronização de portadora para sistemas de comunicação OFDM.* Brazilian Journal of Development, v. 6, p. 14297-14305, 2020.

### Conference Proceedings

- *Mourao, J. A. ; Lucena, A. M. P. ; Araujo, D. C. ; Pacelli, R. V. . Uma técnica para sincronismo de frequência em modulação OFDM.* In: Encontros Científicos 2016, Fortaleza. XXII - Encontro de iniciação à pesquisa, 2016. v. XXII.
- *Pacelli, R. V.; Lucena, A. M. P. ; Araujo, D. C. ; Mourao, J. A. . Sincronização do tempo de símbolo em sistemas OFDM.* In: Encontros Científicos. In: XXII Encontro de Iniciação à Pesquisa, 2016.
- *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.