

# RAFAEL ACCÁCIO NOGUEIRA

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## Education

- nov 2019 **Ph.D in Automatic Control,**  
dec 2022 *CentraleSupélec/Université Rennes 1, Rennes, France.*  
*Sécurité de la Commande Prédictive distribuée sous injection de données faussées*  
**Directeur:** Hervé Guéguen  
○ Utilisation des méthodes d'estimation/classification pour la détection d'attaques et mitigation de ses effets.
- sep 2017 **Master 2 Research in Electronics - Signal, Imaging, Embedded Systems**  
sep 2018 **and Control, Control Path**  
*CentraleSupélec/Université Rennes 1, Rennes, France.*
- sep 2016 **Automatic Systems Engineering - Supélec Formation,**  
sep 2018 *CentraleSupélec, Rennes, France.*
- apr 2013 **Control and Automation Engineering Bachelor Degree,**  
aug 2019 *Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil.*  
*Identification d'un système mécatronique*  
**Superviseur:** Marcos Vicente de Brito Moreira  
○ Modélisation en réseau de Petri d'un système mécatronique multi-agent, implémentation dans un automate en Ladder, et surveillance pour l'identification global (modèle DAOCT) utilisant python.
- apr 2010 **Electronics Technical,**  
dec 2012 *Centro Federal de Ensino Tecnológico Celso Suckow da Fonseca,*  
*Rio de Janeiro, Brazil.*
- Elementary and High School,**  
*Colégio Pedro II - Unidade Escolar Centro, Rio de Janeiro, Brazil.*

## Experience

- apr 2023 **Post Doctoral Researcher,**  
(prévu) *Département: Décision et Optimisation - LAAS/CNRS,*  
- *Toulouse - France*  
Team: Diagnostic, Supervision et CONduite - DISCO,  
Localisation relative garantie et scénario d'anticollision de véhicule autonome.  
**Responsable:** Soheib Fergani
- oct 2018 **Engineering Internship,**  
feb 2019 *Team: Machine Learning/Fraud Detection - Stone Pagamentos,*  
*Rio de Janeiro - RJ - Brasil,*  
Development of tools used by the internship.  
Data analyses for payment solutions.  
○ Programs in Scala using Microsoft SQL Server and other tools  
○ API Rest, Data Streams, State Machines etc using Akka library
- apr 2018 **Engineering Internship,**  
aug 2018 *DEA - IRMV - TECH. VEH. INTELLIGENT - Renault,*  
*Technocentre Renault - Guyancourt - Île de France - France,*  
Development of supervision system for autonomous vehicle.  
○ Interface ROS/Simulink using C++, Python and Matlab/Simulink  
○ State machine using Stateflow

🌐 <http://github.com/Accacio>

🆔 <http://orcid.org/0000-0001-9341-1877>

📄 <http://scholar.google.com/citations?user=ThbzCIMA AAAJ>

- nov 2017 **Industrial Study Project,**  
 apr 2018 *RTE - Réseau de Transport d'Électricité,*  
 Rennes ↔ Paris, France,  
 Development and validation of automaton to optimize the insertion of Renewable Energies.  
 ○ Étude des différents standards CEI 61131 pour des automates industriels  
 ○ Rapport sur compatibilité entre cas d'études et les langages utilisés
- july 2017 **Engineering Internship,**  
 aug 2017 *Institut d'Électronique et de Télécommunication de Rennes,*  
 Rennes, France,  
 Study of voltage control in Distribution Nets.  
 ○ Simulation using PowerFactory  
 ○ Interface between PowerFactory and Simulink  
 ○ Automation of simulations with Python scripts  
 ○ Control Validation
- aug 2015 **Scientific Initiation,**  
 jun 2016 *Laboratório de Processamento de Sinais e Imagens Médicas, UFRJ,*  
 Rio de Janeiro, Brazil.  
 Design of Secure Control for prosthetic robotic arm for muscle atrophy suffering patients  
 ○ Modeling and servomotors control  
 ○ Signal Processing
- apr 2013 ,  
 sep 2013 *Rede Globo - Matriz, TV GLOBO, Rio de Janeiro, Brazil.*  
 ○ Central de Transmissão e Recepção de Sinais - CTRS  
 - Transmission et Réception de Signaux Audiovisuels  
 · Satellites  
 · Fibres Optiques  
 · Internet  
 - Traitement des Signaux (Gamma, Coloration, délai audio etc)

## Teaching

- 2022 **Tutoring,**  
*ECAM, Rennes, France.*  
 ○ Analyse et commande dans l'espace d'état 2A (18h)  
 ○ Asservissement 2A (30h)
- 2020-2022 **Tutoring,**  
*CentraleSupélec, Rennes, France.*  
 ○ Commande Prédictive pour bâtiment intelligent 2A (15h)  
 ○ Commande Prédictive 3A (24h)  
 ○ Automatique 2A (24h)  
 ○ Projet Optimisation pour Microgrid isolé (10h)
- 2014-2015 **Tutoring,**  
*Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil.*  
 ○ Logic Circuits:  
 - Algèbre de Boole, Machines de Mealy et de Moore.  
 - Fonctions logiques combinatoires et séquentielles

## Publication

- 2022 **Security of distributed Model Predictive Control under False Data Injection.**  
 Doctoral Thesis  
<https://theses.hal.science/tel-04003991v1>

 <http://github.com/Accacio>

 <http://orcid.org/0000-0001-9341-1877>

 <http://scholar.google.com/citations?user=ThbzCIMA AAAJ>

- 2022 **Expectation-Maximization based defense mechanism for dMPC.**  
9th IFAC Conference on Networked Systems NECSYS 2022  
<https://doi.org/10.1016/j.ifacol.2022.07.238>
- 2021 **Detection and mitigation of corrupted information in dMPC based on resource allocation.**  
5th Conference on Control and Fault-Tolerant SYSTOL 2021  
<https://doi.org/10.1109/SysTo152990.2021.9595927>
- 2019 **Identification of a mechatronic system.**  
Bachelor Thesis  
<http://repositorio.poli.ufrj.br/monografias/monopoli10029376.pdf>

## IT Competences

Programming	C, C++, Matlab, Scala, Python, Java, LADDER, Grafcet, Wolfram Language, Fanuc's TP, L <sup>A</sup> T <sub>E</sub> X, SQL, Emacs Lisp, C#, Assembly, etc
Tools	Git, Bash, Tikz, Simulink, PowerFactory, Siemens' Step7, ROS, ESTEREL'S SCADE Suite / export to VxWorks, SysML, UML, HTML, Fanuc's Roboguide, SketchUp, Trello, Asana, Jira, Confluence, Github Projects, Blender, Godot, Gimp, etc
Operating Systems	Linux and Windows

## Languages

	Listening	Speaking	Reading	Writing
Portuguese	Native	Native	Native	Native
French	Fluent	Fluent	Fluent	Fluent
English	Fluent	Fluent	Fluent	Fluent
German	Basic	Basic	Basic	Basic

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## Prizes

2016–2018  
3<sup>rd</sup> Industrial Robotics Olympics - FANUC - France 2017

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## Interests

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- Programming - Smart Grids
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