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EDUCATION

University of Campinas — **Campinas, SP - Brazil**
Ph.D. Student in Computer Science — *2017 - Present*
Advisor: Dr. Diego de Freitas Aranha

State University of Santa Cruz — **Ilhéus, BA - Brazil**
M.Sc. in Computational Modeling and Applied Mathematics — *2014 - 2016*
Advisor: Dr. Dany Sanchez Dominguez

State University of Santa Cruz — **Ilhéus, BA - Brazil**
B.Sc. in Computer Science — *2010 - 2014*
Advisor: Dr. Susana Marrero Iglesias

PERSONAL INFORMATION

- **CITIZENSHIP:** Brazilian
- **DATE OF BIRTH:** July 24, 1985

LANGUAGE SKILLS

- **PORTUGUESE:** Native speaker
- **ENGLISH:** Working knowledge
- **FRENCH:** Basic communication

TECHNICAL SKILLS with KNOWLEDGE EXPERIENCES (Advanced, intermediate and beginner)

- **SYSTEMS ADMINISTRATION:** GNU/Linux and Windows
- **PROGRAMMING LANGUAGES:** Assembly, C, C++, Java, Python, C Sharp, MatLab, SciLab, R, Scala, Shell Script, Groovy, Kotlin, Swift, Objective-C, Perl, Ruby, PHP, HTML, CSS and JavaScript (Node.js and React Native/JS)
- **PARALLELISM:** Cuda, OpenMP, MPI, Pthreads, MapReduce, Spark and Vtune
- **DATABASES:** SQL (MySQL, SQLite, PostgreSQL and Oracle) and NoSQL (MongoDB, Cassandra and Amazon DynamoDB)
- **CLOUDS:** AWS, Google Cloud and Azure
- **VIRTUALIZATION:** VMware, Hyper-v and VirtualBox
- **MOBILE:** Great knowledge in Android development (Application Components), Android Java APIs, ADB logs, ANRs, Force closes and tombstones, and basic development in IOS
- **VERSIONING:** Git, SVN, GitHub and GitLab
- **INFORMATION SECURITY:** Security protocols (cryptography) and Efficient implementation, Information security policies and ISO 27000 family
- **PRIVACY PRESERVATION:** Differential Privacy, K-anonimity, Pseudonyms, GRPD (LGPD in Brazil), ISO/IEC 29151 and ISO/IEC 29134
- **SOFTWARE ENGINEERING:** UML; Agile software development: Scrum and XP; Kanban; Mi-

croservices architecture, Serverless, Docker Container, Jira, Gerrit, Jenkins, Artifactory and Source Search
- **MACHINE LEARNING:** Supervised learning: Linear and Logistic regression, Neural networks and Deep learning (CNNs: VGG16, ResNet50 and GoogLeNet - RNN: Simple, Vanilla and LSTM - Object detection: R-CNN and YOLO frameworks - Data augmentation, Transfer learning and Ensemble - SVM), Decision trees (Random forest); Unsupervised learning: Clustering (k-Means, k-Medoids, Fuzzy, Hierarchical and DBSCAN); Dimensionality reduction (PCA, LDA or Feature selection); Statistic estimators (Mean and Variance) - Technologies tools: Scikit-learn, PyTorch, Tensorflow and Keras
- **NETWORK SIMULATION:** SUMO, OMNeT++, Veins and NS3

ACADEMIC AND PROFESSIONAL EXPERIENCE

Digital Government Secretariat of the Ministry of Economy **Brasília, Brazil**
Information Security and Privacy Preservation Specialist *March 2021 - Present*
- Secretary and Director: Luis Monteiro and Mauro Sobrinho
- Member of CGSIN (General Information Security Coordination).
- Provide consultancy to the public bodies of the Esplanada dos Ministérios, National Congress and federal Courts in order to guide them to comply with the General Data Protection Law and improve information security by applying measures and controls based on National and International Norms and Standards.

Venturus/Motorola **Campinas, Brazil**
Systems analyst - (Telephony) Maintenance in the Android Open Source Project *June 2020 - March 2021*
- Managers: Marina Tachibana and José Prado
- Development and validation of new features, customization and bug fixing on some Motorola Android apps for North American carriers (Verizon, T-Mobile, AT & T and so on) and others around the world (LATAM, European and Asian). Support for Android Java APIs. Contribution to log analysis, testing and validation for Google Mobile Services. Conducting technical interviews for job seekers and mentoring newcomers.

National Council of Scientific and Technological Development - CNPq **Campinas, Brazil**
Ph.D. candidate - Privacy-preserving Protocols with differential privacy *September 2019 - June 2020*
- Advisors: Dr. Diego Aranha and Dr. Ricardo Dahab
- Meet all course requirements, review state of the art and investigate open questions in specific literature, propose a solution, publish scientific articles, write and defend a doctoral thesis

Institute of Computing - University of Campinas **Campinas, Brazil**
Teaching - Algorithms and Computer Programming *August 2019 - January 2020*
- Prepare teaching materials and teach classes through the syllabus, as well as evaluate the student with theoretical and practical evaluations
- Syllabus: Algorithm construction, systematic development, implementation, structuring, debugging and testing of programs

Institute of Computing - University of Campinas **Campinas, Brazil**
Teaching assistant - Algorithms and Computer Programming *February 2019 - July 2019*
- Professor: Dr. Raquel Cabral
- Assist the professor to prepare teaching materials and teach practical classes through the syllabus
- Syllabus: Algorithm construction, systematic development, implementation, structuring, debugging and testing of programs

Institute of Computing - University of Campinas **Campinas, Brazil**
Teaching assistant - Algorithms and Computer Programming *August 2018 - January 2019*
- Professor: Dr. Alexandre Falcão
- Assist the professor to prepare teaching materials and teach practical classes through the syllabus
- Syllabus: Algorithm construction, systematic development, implementation, structuring, debugging and testing of programs

Funcamp/LG Eletronics **Campinas, Brazil**

Internship researcher - Privacy-preserving analytics with differential privacy *May 2018 - April 2019*

- Supervisors: Dr. Harsh Patil and Dr. Diego Aranha
- Explore and apply differential privacy techniques to data collection and analytics in modern applications

Federal Research Support Foundation - CAPES **Campinas, Brazil**

Ph.D. candidate - Privacy-preserving Protocols with differential privacy *March 2017 - August 2019*

- Advisors: Dr. Diego Aranha and Dr. Ricardo Dahab
- Meet all course requirements, review state of the art and investigate open questions in specific literature, propose a solution, publish scientific articles, write and defend a doctoral thesis

Depart. of Exact and Technological Sciences - State University of Santa Cruz **Ilhéus, Brazil**

Teaching assistant - Programming Language II *March 2015 - November 2015*

- Professor: Dr. Dany Dominguez
- Assist the professor to prepare teaching materials and teach practical classes through the syllabus
- Syllabus: Program construction: modularization (function, procedure and libraries), parameter passing, dynamic data types, recursion and files.

Research Support Foundation of the State of Bahia - FAPESB **Ilhéus, Brazil**

M.Sc candidate - Numerical methods for nuclear engineering simulations *July 2014 - June 2016*

- Advisor: Dr. Dany Dominguez
- Meet all course requirements, review state of the art and investigate open questions in specific literature, propose a solution, publish scientific articles, write and defend a master thesis

National Council of Scientific and Technological Development - CNPq **Ilhéus, Brazil**

B.Sc candidate - Numerical methods for nuclear engineering simulations *January 2011 - June 2014*

- Advisor: Dr. Susana Iglesias
- Meet all course requirements, review state of the art and investigate open questions in specific literature, propose a solution, publish scientific articles and write a course completion report

RESEARCH INTERESTS

- Applied cryptography
- Privacy-preserving protocols
- High performance computing
- Computational modeling for multi-areas

PUBLICATIONS

JOURNAL

- D. S. Dominguez, R. V. M. Rocha, S. M. Iglesias, A. Escrivá and H. A. Filho - *A composite spatial grid spectral Green's function method for one speed discrete ordinates eigenvalue problems in two-dimensional Cartesian geometry* - **Progress in Nuclear Energy** - 2018
- R. V. M. Rocha, D. S. Dominguez, S. M. Iglesias, R. C. Barros - *Finite Element Method with Spectral Green's Function in Slab Geometry for Neutron Diffusion in Multiplying Media and One Energy Group* - **Trends in Applied and Computational Mathematics - TEMA** - 2016

CONFERENCE

- R. V. M. Rocha, P. P. L. L. Nascimento, H. K. Patil, D. F. Aranha - *A Differentially Private Hybrid Approach to Traffic Monitoring* - **19th International Conference on Applied Cryptography and Network Security** - June, 2021 - Kamakura, Japan
- R. V. M. Rocha, D. S. Dominguez, S. M. Iglesias, R. C. Barros - *Finite element linear discontinuous method with spectral-nodal approximation for one-speed diffusion Eigenvalue problems* - **International Nuclear Atlantic Conference - INAC** - October, 2015 - São Paulo/SP, Brazil
- R. V. M. Rocha, S. M. Iglesias, D. S. Dominguez - *Métodos de Elementos Finitos para Resolver Problemas de Fonte Fixa Usando a Equação da Difusão em Domínios Unidimensionais* - **Congresso de Matemática**

Aplicada e Computacional - Nordeste - CMAC-NE - November, 2012 - Natal/RN, Brazil

ACADEMIC PROJECTS

Privacy-preserving Protocols based on Differential Privacy *March 2017 - Present*

- This project aims to explore and propose differentially private techniques to develop differential privacy-based technology preservation protocols for statistical analysis of static and dynamic databases
- These protocols are intended to benefit society, governments and industry with data analysis applications

Composite Spatial Grids for Nuclear Engineering Simulations *July 2014 – June 2016*

- This project aims to develop, implement and validate a simulator offering a composite spatial grid spectral nodal method to solve eigenvalue integral quantities in fission nuclear reactors using the formulation of discrete ordinates in one-speed approximation and with isotropic scattering source
- These simulators aim to assist the nuclear power industry in the design of nuclear fission reactors

Hybrid Nodal Spectral Method for Diffusion Eigenvalue Problems *Jan 2011 – June 2014*

- This project proposes to develop a simulator offering a discontinuous linear finite element hybrid method with nodal spectral approaches to solve the one-dimensional diffusion equation in multiplicative means, that is, to solve criticality problems in nuclear fission reactors
- These simulators aim to assist the nuclear power industry in the design of nuclear fission reactors

AWARDS AND ACHIEVEMENTS

- Best work from the Scientific Initiation Workshop, SINFORM - UESC, 2014
- Best UESC research project, SIC, 2014
- Award contestant - South America - Brazil - first phase, ACM International Collegiate Programming Contest, 2013
- First place in X University Programming Championship - CPU - TecnoJr, 2012
- Award contestant - South America - Brazil - first phase, ACM International Collegiate Programming Contest, 2012
- First place in IX University Programming Championship - CPU - TecnoJr, 2011
- Honorable mention at the Scientific Initiation Workshop, SINFORM - UESC, 2011