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Personal information

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Degrees

From 11/2024 to present	2nd year PhD student in Computer Science at Gran Sasso Science Institute, Cohort 40, advised by Professor Dr. Gianlorenzo D'Angelo.
From 03/2023 to 09/2024	Master Science Degree in Computer Science at Universidade Federal do Ceará, advised by Professor Júlio César Silva Araújo and co-advised by professor Ana Shirley Ferreira da Silva. Subject: Subfall Coloring of Graphs.
From 03/2019 to 12/2022	Bachelors' Degree in Mathematics at Universidade Federal do Ceará.

Research interests

Classic and parameterized computational complexity; Graph Coloring; Temporal Graphs.

Publications

Journal papers

Davi de Andrade, Júlio Araújo, Laure Morelle, Ignasi Sau, and Ana Silva.
On the parameterized complexity of computing good edge-labelings.
Journal of Computer and System Sciences, 157:103752, 2026. ISSN 0022-0000.

Conference proceedings

[ALGOWIN 2025]	Davi de Andrade, Júlio Araújo, Allen Ibiapina, Andrea Marino, Jason Schoeters, and Ana Silva. Temporal cycle detection and acyclic temporalizations. In: Othon Michail and Giuseppe Prencipe, editors, Algorithmics of Wireless Networks, pages 104–118, Cham, 2026. Springer Nature Switzerland. ISBN 978-3-032-09120-8.
[ETC 2022]	Davi de Andrade and Ana Silva. (Sub)Fall Coloring and B-Coloring Parameterized by Treewidth. In: Anais do VII Encontro de Teoria da Computação. Porto Alegre, RS, Brasil: SBC, 2022. p. 69–72.
[ETC 2021]	Davi de Andrade and Ana Silva. On the Complexity of Subfall Coloring of Graphs. Anais do VI Encontro de Teoria da Computação. Brasil: SBC, 2021. p. 70–73.

Research activities

From 15/09/2025 to 19/09/2025	Presenting at ALGOWIN 2025

Funded by GSSI, I attended to the ALGO conference, which is an annual meeting combining the premier algorithmic conference European Symposium on Algorithms (ESA) and a number of other specialized conferences and workshops, at Warsaw, Poland, to present the work *Temporal cycle detection and acyclic temporalizations* at the International Symposium on Algorithmics of Wireless Networks (ALGOWIN).

From 18/08/2025 to 22/08/2025	## Attending to ADOFCS'25

Funded by GSSI, I attended to the 25th Max Planck Advanced Course on the Foundations of Computer Science, at Saarbrücken, Germany, following the three courses offered by the school, that were taught by professors Maria Chudnovsky, Michał Pilipczuk and Thatchaphol Saranurak.

From 01/2020 to 09/2024	## Member of ParGO Group

During my last three years as an undergraduate, I had a scholarship from the national program called "Programa Institucional de Bolsas de Iniciação Científica - PIBIC", under the supervision of Professor Ana Shirley Ferreira da Silva. I have been part of the ParGO group ever since, taking part in the seminars held every two weeks by the group's participants.

Attended Courses

From 04/11/2024 to 18/12/2024	Immigration Modules

Design and Analysis of Algorithms

Description: Basic notions of algorithms and complexity; Divide-and-Conquer; Dynamic Programming; Basic data structures: heaps, hash tables; Greedy; Local Search; Network Flow; All-pairs Shortest Paths; NP-complete problems and intractability; PSPACE.

Introduction to Formal Methods

Description: Basics on formal models of (concurrent) computations, operational semantics and (labelled) transition systems, regular expressions, basic process algebras. Preliminary concepts of software verification, typical verification flow, common program analysis techniques, decision procedures. Basic concepts of software modelling and analysis with stochastic processes, discrete-time markov processes, and petri nets.

Introduction to Software Engineering

Description: Basic concepts of software development paradigms, application domains, the software life cycle, design of software systems and modeling, software architectures. The course also provide some basic knowledge of the tools used to generate software programs from models.

How to - Introductory Lectures

Description: How to write a paper. How to give a scientific talk. How to referee a scientific paper.

From 15/01/2025 to 16/04/2025	Core Modules

Algorithmic Game Theory

Description: Basic notions of equilibrium: dominant versus Nash; computational issues of equilibria; performance of equilibria (price of stability and anarchy). Congestion games: congestion games, cost sharing games, load balancing; price of anarchy and stability; PLS-completeness; speed of convergence. Mechanism design and strategyproofness in coalition games. Learning in coalition games.

Approximation Algorithms

Description: Introduction to linear programming; the set cover problem; greedy algorithms and local search; rounding data and dynamic programming; deterministic rounding of linear programs; random sampling and randomized rounding of linear programs; the primal-dual method; techniques to prove the hardness of approximation.

Distributed Graph Algorithms	**Description:** This course is about theory of distributed computing. Some of the most studied models of distributed computing, with focus on synchronous and fault-free models. Define the distributed setting and what is a distributed algorithm, illustrating the formal definition with some simple examples. Simple fundamental tasks such as coloring, maximal independent set, and maximal matching. Discuss the topic of decidability: given a problem, can one automatically decide what is its asymptotic distributed complexity? How to solve some tasks in this setting. Impossibility results. Prove lower bounds for the distributed complexity of some classical problems.
Advanced Algorithms	**Description:** Advanced methods of algorithmic design in different models of computation. Some of the topics: Introduction to the PRAM model (Parallel RAM); Parallel algorithms for the Maximum Matching problem; Prime numbers, testing from primality, quantum algorithms for factorization; Multiplication of polynomials and Fast Fourier Transform; Advanced Data Structures; Randomized Algorithms
Satisfiability Problems and Applications	**Description:** Boolean Satisfiability (SAT) and Satisfiability Modulo Theories (SMT). An overview of decision procedures and it will be mainly concerned with the implementation and the application of SAT and SMT to concrete problems. Issue of encoding problems into appropriate SAT and SMT instances, and present examples from various research and industry domains, exploring the solutions currently available.
From 06/05/2025 to 18/07/2025	Advanced Modules
Experimental Algorithmics and Algorithm Engineering	**Description:** Experimental design; Measures in algorithmic experiments; Algorithm and code tuning; Building test environments; Analysis of experimental data.
Introduction to Parameterized Complexity	**Description:** Algorithmic (A) aspects, and on Formal Methods (FM) viewpoints, respectively. The algorithmic part (A) covers methods for designing FPT-algorithms (kernelization, and dynamic programming with graph-width parameters). The formal methods part (FM) introduces algorithmic meta-theorems for obtaining FPT-results such as Courcelle's theorem, and classifications of 'FPT-intractability' by means of concepts from mathematical logic (the W/A-hierarchies of complexity classes based on model checking problems).
Fair Division of Divisible and Indivisible Resources	**Description:** Divisible Resources: Cake-cutting problem; Fairness Criteria; Proportionality; Envy-freeness; Dubins-Spainer protocol; Cut-and-choose; Efficiency in Resource Allocation; Welfare Notions; Equitability; Trends in Indivisible Resources: Equitability up to one good; Fairness with entitlements; Proportionality up to one good; Envy-cycle elimination; Envy-freeness up to any good; Epistemic EFX.

Projects

Participation within the CNPq/MCTI call 10/2023, project number 404479/2023-5. Title "**TAPIOCA - Teoria Aplicada a Problemas Integrando Otimização, Combinatória e Algoritmos**". 2023 - present. Funded R$ 250,000.00, equivalent to approximately €44,601.52.

Participation within the Funcap call 01/2022, project MLC-0191-00056.01.00/22. Title "**Temporal graphs, Optimization and Parameterization - TOP**. 2022 - 2024. Funded R$ 86,454.00 to cover travel expenses and hardware purchases. Equivalent to approximately €16,539.60 at the time of approval.

Workshop Organization

II Fortaleza Workshop em Combinatória (ForWorC 2023)	I was part of the support team for the ForWorC 2023 workshop, which took place between November 6 and 10, 2023. The speakers were professors from Brazilian and foreign universities and two mini-courses were included in the workshop. Full information of the workshop can be found in its official website (in portuguese) and a detailed program of the workshop in english can be found here.