

Gabriel Morete de Azevedo

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EDUCATION

University of São Paulo, São Paulo, Brazil *Aug 2017 - Jul 2021*

Bachelor's in Molecular Sciences

GPA: 9.1/10.0

The Molecular Sciences Course is a research-focused multidisciplinary program comprising two years of coursework in Computer Science, Mathematics, Physics, Biology, and Chemistry and two years of specialization. I specialized in Theoretical Computer Science.

University of São Paulo, São Paulo, Brazil

Aug 2021 - May 2024

Master Program in Computer Science

Cornell University, Ithaca, United States

Aug 2024 - Present

PhD in Operations Reserarch

Projects and Experience

University of São Paulo

Aug 2017 – Jul 2020

System Administrator

São Paulo, SP, Brazil

Maintained the digital infrastructure of the Molecular Sciences Course - USP consisting of two servers and +30 clients. Implemented a distributed network filesystem using LDAP as well as other automated services in Python/Bash. Was responsible for recruiting and training the new staff and at the beginning of each term, gave a lecture on Linux and open-source software to the freshman.

University of São Paulo

Aug 2019 – Jul 2020

Undergrad Research Project

São Paulo, SP, Brazil

Project entitled “Combinatorial optimization: theory, formulations, and applications”, funded by FAPESP (São Paulo Research Foundation) (grant 19/11702-2), and supervised by Prof. Carlos Eduardo Ferreira. Worked on theoretical aspects of linear and mixed-integer optimization, polyhedral combinatorics. Also implemented a TSP solver using Gurobi framework and C++. Was awarded an exchange grant from University of São Paulo Innovation Agency to continue this project at Friedrich-Alexander-Universität Erlangen-Nürnberg (unable to visit because of COVID-19 pandemic).

University of São Paulo

Aug 2020 – Jul 2021

Undergrad Research Project

São Paulo, SP, Brazil

Project entitled “The Prize-Collecting Steiner tree problem”, funded by FAPESP (grant 20/10341-3) and supervised by Prof. Carlos Eduardo Ferreira. Worked on the development of exact and approximation algorithms for the Prize-Collecting Steiner tree problem based on polyhedral combinatorics and primal-dual techniques. Implemented a competitive approximation algorithm for the problem in C/C++ which is publicly available at GitHub.

Conference Presentation: “New reduction tests for the prize-collecting Steiner tree problem” <https://doi.org/10.5753/etc.2021.16379>. VI Meeting in Theoretical Computer Science - Congress of the Brazilian Computer Society (CSBC 2021).

University of São Paulo

Aug 2021 – Present

Master's research project

São Paulo, SP, Brazil

Project entitled “Connectivity augmentation in graphs and robust networks”, funded by FAPESP (grant 21/12599-0), and supervised by Prof. Yoshiko Wakabayashi. Currently working on designing approximation algorithms for the graph connectivity augmentation and fault resistant networks, mixing combinatorial and polyhedral techniques.

University of Waterloo

Feb 2023 – Jun 2023

Research Intern

Waterloo, On, Canada

Worked under the supervision of Prof. Joseph Cheriyan on approximation algorithms for survivable network design problems from a theoretical and computational standpoint. Developed novel and fast algorithms using linear optimization and polyhedral techniques. Implemented state-of-the-art algorithms using C++, Gurobi, and parallelization using OpenMP.

University of São Paulo

Teaching Assistant

São Paulo, SP, Brazil

Was teaching assistant for the following courses:

- Introduction to Graph Theory
- Introduction to Computer Science
- Approximation Algorithms

Mar 2022 – Jul 2022
Aug 2022 – Dec 2022
Aug 2023 – Dec 2023

Responsible for holding office hours and grading assignments. For the approximation algorithms course, which had students from both undergraduate and graduate levels, was also responsible for preparing assignments and teaching part of the course. Gave lectures on the applications of semidefinite optimization to approximation algorithms.

University of São Paulo

Proofreader

Nov 2023 – Jan 2024

São Paulo, SP, Brazil

Invited by Prof. Cláudio L. Lucchesi to proofread the book *Perfect Matchings - A Theory of Matching Covered Graphs*, by C. L. Lucchesi and U. S. R. Murty. To be published by Springer in the series Graduate Texts in Mathematics.

COMPETITIVE PROGRAMMING

In this activity, the practitioner improves teamwork skills, learns the use and implementation of complex algorithms and data structures, and writes code quickly and accurately in C++ and Python. Achievements include:

- 46° International Collegiate Programming Contest World Finals (to happen);
- ICPC South American Finals: 2021 Silver Medal rank: 5/250+, 2020 Bronze Medal rank: 8/300+;
- ICPC subregional Brazil: 2021: 5/500+, 2020: 11/700+, 2019: 24/650+;
- Problem Setter: Brazilian Olympiad of Informatics 2022; USP Try-Outs 2022.

Has been the coach of the university's competitive programming group (MaratonUSP) since 2022. The responsibilities include giving lectures, organizing training camps (ICPC and IOI), preparing competitions that are available to the community, and obtaining funding for the teams. As a coach, was awarded two silver medals and one bronze medal at the ICPC South American Finals. Established affirmative actions to encourage female participation, resulting in the qualification of the first all-female team to the South American Finals.

Invited by the Brazilian ICPC committee to teach at the 2023 Brazilian ICPC Summer School, the largest event of its kind in Latin America. Lectured on algorithms for more than 150 students from several countries in South America. Co-organized a preparatory course for the students representing Brazil at IOI 2022.

SUMMER SCHOOLS AND EVENTS

- First Brazilian School of Combinatorics, 2023, Juquehy, São Paulo, Brazil.
- Brazilian ICPC Summer School, 2023, Campinas, Brazil. (Instructor)
- Modern Trends in Combinatorial Optimization, 2022, Lausanne, Switzerland.
- V São Paulo Workshop on optimization, combinatorics and algorithms, 2022, São Paulo, Brazil.
- XVII Escuela de Verano en Matemáticas Discretas, 2022, Valparaíso, Chile. (Online)
- School on Modern Directions in Discrete Optimization, 2021, Bonn, Germany. (Online)
- 14th Latin American Theoretical Informatics Symposium, 2021, São Paulo, Brazil. (Online)
- XI Latin and American Algorithms, Graphs and Optimization Symposium, 2021, São Paulo, Brazil. (Online)
- XLI Congress of the Brazilian Computer Society, 2021, Florianópolis, Brazil. (Online)
- Combinatorial Optimization at Work, 2020, Berlin, Germany. (Online)
- First workshop in mathematics and industry, IMPA, 2020, Rio de Janeiro, Brazil.