Mateus Barros Rodrigues

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Education

Feb 2017 - Jul 2019 **Masters Degree in Computer Science**,
Project Title: "Geometric shortest path problems", IME - USP.

- **Description:** I am currently studying several algorithms for the classical geometric single source shortest path problem inside simple polygons, where given a source vertex we would like to find the shortest path from it to every other vertex without violating the boundary of the polygon.
- **Teaching Assistant Work:** MAC0110 - Introduction to Computer Science (2018/1) and MAC0323 - Algorithms and Data Structures II (2017/2).

Mar 2012 - Dec 2016 **Bachelor Degree in Computer Science**,
Project Title: "Window-segment intersection queries", IME - USP.

- **Description:** I studied and implemented a computational geometry algorithm to quickly find all line segments intersecting with a given rectangular window on $\mathbb{R}^2$ space and many related algorithms for point location and line segments intersection. More information at: linux.ime.usp.br/~mlord/mac0499/.
- **Teaching Assistant Work:** MAC0110 - Introduction to Computer Science (2015/1) and MAC0122 - Principles of Algorithm Design (2015/2).

Projects

Mar 2015 - Jul 2015 **Teaching Assistants Management System**,
Contributed to the development of the TA Managing Website. (Github link), IME - USP.

- **Description:** Worked in a group with 5 other students to help mantain and develop new features for the internal management system for Teaching Assistants while undertaking the course MAC0342 - Extreme Programming Lab. The implementation was mostly done using Ruby on Rails, following agile development practices.

Aug 2014 - Dec 2014 **4-Approximation Algorithm for Convex Decomposition of a Simple Polygon**,
Computational Geometry Algorithm Implementation. (Github link), IME - USP.

- **Description:** Python implementation of Hertel and Mehlhorn's algorithm for convex decomposition of simple polygons for MAC0331 - Computational Geometry course. It required implementation of a Red-Black Binary tree, an algorithm for triangulation of monotone polygons and an implementation of the Winged Edge data structure.

Extra-curricular Activities

Apr 2014 - Apr 2016 **Organization of the Computer Science Week (Encontro do BCC)**, IME - USP,
Participated as one of the organizers in IME-USP's Computer Science Week. link: bcc.ime.usp.br/encontro/.

- **Description:** Helped surveying students' topics of interest, finding and inviting speakers and potential sponsors, arranging accommodation and transportations for speakers, among other event-managing related tasks.