Gustavo Alcalá **Batistela**

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About me

I'm a graduate civil engineer who's been passionate about programming since my first contact with it. For years, I've worked as a researcher optimizing and debugging high-performance C++ code. As I'm about to conclude my master's degree, I'm looking for an opportunity to deepen my knowledge in a team that applies the highest industry standards regarding tests, design patterns and security. In my free time, one can find me playing guitar, accordion or rock climbing.

Education

UNICAMP — *Campinas, Brazil*

Master's Degree, Civil Engineering — *Aug. 2019 - Present (Estimated completion Feb. 2022)*

- Development of an approximation error estimator for the multiscale hybrid-mixed finite element method, under the supervision of Prof. Dr. Philippe Devloo.
  Implementation in the NeoPZ C++ library, available at: github.com/labmec/neopz.

Cardiff University — *Cardiff, United Kingdom*

Academic exchange, Civil Engineering — *Sep. 2015 - Jul. 2016*

- Sandwich undergraduate degree through Science without Borders programme.
- 120 credits fulfilled on engineering and German modules.

UNICAMP — *Campinas, Brazil*

Graduate Degree, Civil Engineering — *Feb. 2013 - Dec. 2018*

- Undergraduate thesis on error estimation of approximations of Darcy's equation using the finite element method.

Experience

SimWorx, R & D — *Campinas, Brazil*

Research Engineer — *Jan. 2019 - Mar. 2020*

- Development of mathematical models and formulations for structural analysis of dams and spillways.
- Perform numerical simulations and comparisons to installed sensors in real-time. Calculations implemented in C++ using internal library.

SimWorx, R & D — *Campinas, Brazil*

Internship — *Jan. 2018 - Dec. 2018*

- Generation of 3D finite element meshes of dams and spillways from original blueprints.
- Parsing geometry information to C++ codebase.

UNICAMP — *Campinas, Brazil*

Undergraduate Research — *Feb. 2017 - Mar. 2018*

- Development of a Qt/C++ application to calculate plane frames using the matrix analysis method, under the supervision of Prof. Dr. Philippe Devloo. Available at: github.com/labmec/jstatics.

Cardiff University — *Cardiff, United Kingdom*

Undergraduate Research — *Apr. 2016 - Jul. 2016*

- Development of a plug-in for *Autodesk Revit®* using its C# API, under the supervision of Prof. Dr. Thomas Beach.

Skills

Programming Languages

- Advanced C++
- Experience with C, C#, Python, Bash and Wofram Mathematica

Tools & Technologies

- Advanced Linux, Git, CMake and LaTeX
- Experience with Excel (Macros and VBA)
- Experience with Qt

Languages

English
- Fluent

Spanish
- Basic to Intermediate

German
- Basic to Intermediate