Erik Giesen Loo

Software Engineer

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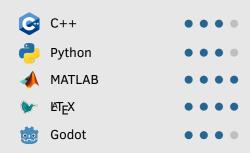
@ erik.giesenloo@gmail.com

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github.com/erikjloo

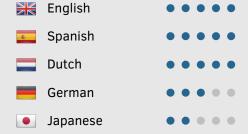
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Computer



Languages

Linux



Interests

- Algorithms & data structures
- Computational modelling
- Game development

Personal Summary

A skilled engineer looking for a stimulating software engineering role. I did my Master's at TU Delft, where I specialised in Computational Mechanics. I enjoy writing C++ and Python code for personal and academic projects, and I am using MATLAB for data analysis in my current role. I like to produce clean well-documented code, and using my ingenuity to solve challenging problems.

Experience

Graduate Engineer, Roughan & O'Donovan, UK.

Oct 2018 - Present

- · Analysed data for the M50 enhancing Motorway Operation Services (eMOS) project
- · Created a traffic data analysis and visualisation GUI to aid data-driven decision-making
- · Developed a traffic flow breakdown probabilistic model to fine-tune lane control signals
- Automated the creation of monthly 'M50 Operational Metrics' traffic reports for the on-going assessment of performance improvements brought on by new ITS infrastructure

Research Assistant, *Bucknell University*, USA.

Summer 2015, Summer 2016

- Researched the lateral torsional buckling stability of steel joists and crane girders
- Performed background studies for a new 2nd-order analysis method in AISC 360-16

Education

Delft University of Technology, The Netherlands.

Sep 2016 - Sep 2018

M.Sc. Civil Engineering (Cum Laude), grade: 8.3/10

- · Track: Structural Engineering
- · Specialisation: Structural Mechanics
- Thesis: "Weak periodic boundary conditions: Effect on principal stress due to axial load under varying orientations" ☑
- Additional Thesis: "Quantifying the influence of membrane forces, curvature, and imperfections on the nonlinear buckling load of thin-shells" <a>I

Bucknell University, USA.

Aug 2012 – May 2016

B.Sc. Civil Engineering (Magna Cum Laude), GPA: 3.8/4.0

• Thesis: "Design of Steel Structures by Advanced 2nd-Order Elastic Analysis - Background Studies" ☑ ■

Certificates

Introduction to Machine Learning, Duke University.

May 2021

- · Logistic Regression, Multilayer Perceptron
- · Convolutional Neural Networks
- Recurrent Neural Networks, Long-Term Short Memory

Algorithms Specialisation, *Stanford University*. **☑**

Apr 2021

- · Divide and Conquer, Sorting and Searching, and Randomized Algorithms
- · Graph Search, Shortest Paths, and Data Structures
- Greedy Algorithms, Minimum Spanning Trees, and Dynamic Programming
- · Shortest Paths Revisited, NP-Complete Problems and What To Do About Them

Accelerated Computer Science Fundamentals, *University of Illinois at Urbana-Champaign*. ☑

Sep 2020

- Object-Oriented Data Structures in C++
- Ordered Data Structures
- Unordered Data Structures

Programming in JIVE, *Dynaflow Research Group*.

Jun 2018

• Learned how to use Jive – an open source research-oriented C++ programming toolkit for solving partial differential equations

CPD Professional Engineering, *Technological University Dublin*.

Jun 2019

- Time Management & Organisational Skills
- Communication & Presentation Skills
- Technical Report Writing
- Project Management
- · Excel for Engineers

Erik Giesen Loo

Software Engineer

Memberships -



Koninklijk Instituut Van Ingenieurs



Chi Epsilon Civil Engineering Honor Society

Projects

My Portfolio. ☑ Jul 2021

• My first venture into learning html, css & javascript

• Sourcecode: https://github.com/erikjloo/erikjloo.github.io

Fourgotten, GMTK Game Jam.

• Worked collaboratively with a team to develop a game in 48 hours

• Sourcecode: https://github.com/Archeologits/GMTK-GJ-21

Python FEM. Jan 2020

· A modular object-oriented finite element analysis library

• Sourcecode: https://github.com/erikjloo/Python-FEM

Weakly Periodic Boundary Conditions.

Feb 2020

Jun 2021

- A novel boundary conditions model for the homogenisation of microscale elements in multiscale finite element analyses, coded in C++ using the Jem & Jive FEM libraries
- Sourcecode: https://github.com/erikjloo/WeakPeriodicBC

Publications

Giesen Loo E, van der Meer FP. Stress-controlled weakly periodic boundary conditions: Axial stress under varying orientations. *Int J Numer Methods Eng.* 2020;1–13. https://doi.org/10.1002/nme.6441 ✓

July 29, 2021 Erik Giesen Loo