Holm

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# About Me

I am eagerly preparing to embark on my PhD journey in computational mechanics, specifically fluid-structure interaction within the Civil and Environmental Engineering department at the University of Illinois at Urbana-Champaign, commencing in August 2024. Originally from Melbourne, Australia, I completed both my bachelor's and master’s in environmental engineering at The University of Melbourne.

On this website you will find the numerous pursuits that take up my time. From the work I am undertaking during my PhD, my personal passion projects, as well as my writings on a wide range of topics that interest me.

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I am mostly interested in high fidelity and large-scale environmental modelling. My primary coding language is C++, utilizing the numerical library PetSC, developed up the road from Illinois at Argonne National Laboratory. However, most of my remote sensing visualization is done in Python.

Beyond my professional interests, I have a deep appreciation for geography and history, literature, and languages. Reading fuels all my curiosity and imagination, and I have shared a selection of my favorite books here. Additionally, I am proficient in Chinese, which I learnt by myself, for those comfortable in the language, feel free to explore this website in Chinese by clicking the toggle button in the navigation pane.

This all cumulates into *environmental storytelling*, which I have formulated as an engaging, scientific way of showcasing the environment and its relationship to humanity.

Non-scholarly interests include that of bushwalking and Australian football, the native sport of my country.

If you have any enquiries or thoughts, I would be delighted to engage with you, feel free contact me through any means given in the navigation pane.

# Projects

## Quanyan

*Quanyan is suite of software relating to terrain and object generation, modelling, and meshing written in C++. Developed to be used with the Torrentem Fluid-Solid Interaction (FSI) solver.*

## Torrentem

*Torrentem is a physics solver developed primarily in C++. It is primarily a computational fluid dynamic (CFD) and includes functionality for fluid-solid interaction (FSI). The solver utilizes the parallel PETSc numerical software library to enhance its computational capabilities.*

## Ostium

*Ostium is a collection of geospatial utilities developed in C++ and Python. It includes routines for river and waterbody identification, mapping visualisations, and parameter estimation and retrieval. Designed to be integrated with my other developed software.*

## Aestuarium

*Aesturaium is a 3D visualization engine and sandbox written in C++ and utilizing the Vulkan API. It is designed to be compatible with data from my other projects, Quanyan and Torrentem.*

## Holm

*Holm is a personal website I am developing to chronicle my PhD journey and various academic, professional and personal passion endeavours. It serves as a platform where I share updates, insights, and breakthroughs, offering a comprehensive view of my progress and achievements.*