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.

# Projects

## Torrentem

*Torrentem is a parallel CPU/GPU multi-physics solver library developed in C++ to be the key driver in my PhD research. Developed to be used in a powerful and flexible way, it implements advanced numerical techniques such as RBVMS and stabilised finite element formulations, a level-set method, custom GPU based linear solvers, and a mesh paritioning and MPI communcation model for Parallel CPU on multi-node HPCs. Currently closed source.*

## Vat Photopolymerization Testbed

*Using my Torretem library, this project is a testbed for testing numerical modelling of vat based photopolymerization. Vat photopolyermization is a type of additive manufactuing, that involves the curing of a liquid polymer into a desired solid structure.*

## Numerical Wave Tank

*Using my Torrentem library, this project is the implementation of a numerical wave tank. Which is used as a testbed for investigating new phenomena and numerical techniques in oceanography/surface hydrodynamic engineering.*