## Manu Jayadaran, PhD

## Publications

- M. Jayadharan and I. Yotov, Multiscale mortar mixed finite element methods for the Biot system of poroelasticity, <u>arxiv math.NA</u>, 2022, preprint.
- M. Jayadharan, M. Kern, M. Vohralík, and I. Yotov. A space-time multiscale mortar mixed finite element method for parabolic equations. SIAM Journal on Numerical Analysis, 2022 (to appear) <u>link</u>.
- M. Jayadharan, E. Khattatov, and I. Yotov, Domain decomposition and partitioning methods for mixed finite element discretizations of the Biot system of poroelasticity. Computational Geosciences 25, 1919–1938, Springer 2021, link.

## Theses

- PhD M. Jayadharan, Domain Decomposition And Time-Splitting Methods For The Biot System Of Poroelasticity, Doctoral Dissertation, University of Pittsburgh.
  2021, link.
- MS M. Jayadharan, Study of Cauchy's Basic Equations and Convex functions, MS Dissertation, IISER Mohali **2016**, <u>link</u>.

## • Openly published packages

- <u>FluidLearn</u> Python based open-source software package to solve Multiphysics PDEs using supervised physics informed neural networks (PINNs) .
- <u>SpaceTime</u> C++ based parabolic PDE solver, using a combination of space and <u>PDE solver</u> time domain decomposition techniques to improve computational efficiency, <u>research article link.</u>
- <u>BiotDDSolver</u> C++ based poroelastic fluid flow simulator, using HPC domain decomposition techniques to improve computational efficiency, research article link
  - <u>VTNNS</u> Fortran based variable topology biological neural network simulator, research article link.
  - <u>Others</u> Detailed list of packages on <u>GitHub</u>.