

Ian MAY

PERSONAL DATA

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EDUCATION

JULY 2018	Master of Science in APPLIED MATHEMATICS Simon Fraser University , Burnaby BC Thesis: Domain Decomposition Solvers and Preconditioners for the Closest Point Method
MAY 2016	Bachelor of Science in MATHEMATICS Colorado State university , Fort Collins Selected work: Minimal Polynomials of the Bifurcation Values of the Logistic Map
MAY 2016	Bachelor of Science in MECHANICAL ENGINEERING Colorado State university , Fort Collins Thesis: Data Assimilated Smagorinsky-Lilly Turbulence Model for Large Eddy Simulation

RESEARCH EXPERIENCE

SEP 2019 - CURRENT	PhD Student under Prof. Dongwook Lee at UCSC I am currently investigating the application of Gaussian processes and non-polynomial reconstruction methods for the numerical solution of compressible hydrodynamics and magnetohydrodynamics problems.
AUG 2018-DEC 2018	Research Scientist at SFU The methods and software developed during my masters program were substantially expanded to include multicomponent equations, varied domain splitting techniques, and increased robustness.
AUG 2016-JULY 2018	MSc Student Under Prof. Steven Ruuth I developed Schwarz type parallel preconditioners for elliptic PDE intrinsic to surfaces. Optimized Restricted Additive Schwarz methods were formulated for the stabilized Closest Point Method. MPI parallel software was developed to realize these methods.

TEACHING EXPERIENCE

OCT 2020-DEC 2020 SEP 2021-DEC 2021	Graduate student instructor at UCSC I held a GSI appointment at UCSC to teach AM129, <i>Foundations of scientific computing</i> , which introduces students to a wide range of fundamental tools in scientific computing.
JAN 2021-MAR 2021 JAN 2022-MAR 2022	Graduate teaching assistant at UCSC I held two GTA appointments to support AM213a, <i>Numerical linear algebra</i> . This is one of the core first year graduate courses. I held weekly office hours to support the students, and occasionally delivered informal lectures on foundational material to provide context to the course.
AUG 2016-JULY 2018	Graduate teaching assistant at SFU I held appointments including the introductory calculus courses, an introductory computational methods course, and the upper division numerical analysis course. The numerical analysis appointment included preparing and giving one lecture per week. I also helped implement a Canvas/MatLab interface for the numerical analysis course.

FELLOWSHIPS AND AWARDS

JAN 2022-JUNE 2022

Graduate pedagogy fellow with UCSC CITL

I participated in the graduate pedagogy fellowship through the Center for Innovative Teaching and Learning at UCSC. I learned about equity-minded and anti-racist teaching, as well as active learning techniques. This culminated with me overhauling the TA training program within my department.

PUBLICATIONS

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- May, I., Haynes, R., and Ruuth, S., Schwarz Solvers and Preconditioners for the Closest Point Method, SIAM Journal on Scientific Computing, 2020, volume 42-6, A3584-A3609, <https://doi.org/10.1137/19M1288279>.
 - May, I., Haynes, R., and Ruuth, S., Domain decomposition solvers and preconditioners for the implicit closest point method, Domain Decomposition Methods in Science and Engineering XXV, 2020, pages 458-465, https://doi.org/10.1007/978-3-030-56750-7_53.
 - Gao, X., Wang, Y., Overton, N., May, I., and Tu, X., Data Assimilated Computational Fluid Dynamics Algorithm for Combustion, AIAA 2016-1810, 54th AIAA Aerospace Sciences Meeting, January 4-8, 2016, San Diego, California
 - Gao, X., Wang, Y., Overton, N., May, I., and Tu, X., Estimation of Flame Speed Model Parameter Using Ensemble Kalman Filter Algorithm, WSSCI 2015-134IE-0013, Fall Meeting of the Western States Section of the Combustion Institute, October 5-6, 2015, Provo, Utah

CONFERENCE PRESENTATIONS

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- 25th Domain decomposition conference talk: *Domain decomposition solvers and preconditioners for the implicit closest point method*. July 26th, 2018
 - PIMS workshop on numerical methods for PDEs on surfaces talk: *Domain Decomposition and the Implicit Closest Point Method*. June 13th, 2017
 - Rocky mountain fluid mechanics meeting talk: *Universality of dissipation scales in turbulence*, August 4th, 2015
 - 67th APS Division of fluid dynamics talk: *On the universality of local dissipation scales in turbulence*, November 25th, 2014
 - 66th APS Division of fluid dynamics talk: *Effects of anisotropy on the fluctuating dissipation scale*, November 24th, 2013