Samuel E. Reynolds

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Education

Portland State University — **Portland, Oregon**
Ph.D. in Mathematical Sciences — *6/2024*

Portland State University — **Portland, Oregon**
M.S. in Mathematics — *4/2020*

Portland State University — **Portland, Oregon**
B.S. in Mathematics — *8/2017*
Minor in physics; *magna cum laude*; departmental honors

Research Interests

My primary research focus is numerical methods for partial differential equations. Specifically, I am working on a finite element method using nonstandard meshes incorporating cells with curved edges and holes, using ideas from virtual element methods and boundary element methods. I also have experience in numerical optimization and high performance computing.

Positions

Research positions

Fariborz Maseeh Dept. of Math. & Stats., Portland State University — **Portland, Oregon**
Research assistant — *6/2016 – 6/2024*
Advisor: Jeffrey Ovall

Lawrence Livermore National Laboratory — **Livermore, California**
Computing scholar, summer internship — *6/2022 – 8/2022*
Mentor: Julian Andej

Argonne National Laboratory — **Chicago, Illinois**
Givens associate, summer internship — *6/2021 – 8/2021*
Mentor: Richard Tran Mills

Education positions

Fariborz Maseeh Dept. of Math. & Stats., PSU — **Portland, Oregon**
Graduate teaching assistant — *9/2019 – 12/2020*
Supervisor: Andy Flight

The Learning Center, PSU — **Portland, Oregon**
Peer tutor — *4/2016 – 8/2019*
Associate Director: Liane O'Banion

Math. Dept., Portland Community College — **Portland, Oregon**
MTH 251 Lab Assistant — *4/2015 – 3/2016*

Awards and Honors

NSF Research Training Group Graduate Fellowship (2022–2024): National Science Foundation

Excellence in Remote Teaching Award (2020): Fariborz Maseeh Dept. of Math. & Stats., PSU

Level III (Master) Tutor Certification (2019): College Reading & Learning Association

F. S. Cater Prize (2019): Fariborz Maseeh Dept. of Math. & Stats., PSU

Christine and David Vernier STEM Scholarship (2016): PSU College of Liberal Arts and Sciences

Oregon NASA Space Scholarship (2015): Oregon Space Grant Consortium

Publications

[6] Jeffrey S. Ovall and Samuel E. Reynolds. "Evaluation of Inner Products of Implicitly Defined Finite Element Functions on Multiply Connected Planar Mesh Cells". *SIAM Journal on Scientific Computing* 46.1 (2024), A338–A359.

[5] Jeffrey S. Ovall and Samuel E. Reynolds. "Quadrature for implicitly-defined finite element functions on curvilinear polygons". *Computers & Mathematics with Applications* 107 (2022), pp. 1–16.

[4] Akash Anand et al. "Trefftz finite elements on curvilinear polygons". *SIAM Journal on Scientific Computing* 42.2 (2020), A1289–A1316.

[3] Nguyen Mau Nam et al. "Clustering and multifacility location with constraints via distance function penalty methods and dc programming". *Optimization* 67.11 (2018), pp. 1869–1894.

[2] Nguyen Mau Nam et al. "Nesterov's smoothing technique and minimizing differences of convex functions for hierarchical clustering". *Optimization Letters* 12 (2018), pp. 455–473.

[1] Jeffrey S. Ovall and Samuel E. Reynolds. "A high-order method for evaluating derivatives of harmonic functions in planar domains". *SIAM Journal on Scientific Computing* 40.3 (2018), A1915–A1935.

Selected Presentations

venue — **location**
title — *mm/yyyy*

Computing Skills

Python, MATLAB, C, C++, Wolfram Mathematica, MS Excel, LaTeX, git, Linux, MacOS, MS Windows

Further Information

Also known as: Sam Reynolds

Pronouns: he/him/his

Country of citizenship: United States of America