

# Samuel E. Reynolds

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## Education

<b>Portland State University</b> <i>Ph.D. in Mathematical Sciences</i>	<b>Portland, Oregon, USA</b> 2024 ( <i>Expected</i> )
<b>Portland State University</b> <i>M.S. in Mathematics</i>	<b>Portland, Oregon, USA</b> 2020
<b>Portland State University</b> <i>B.S. in Mathematics, Magna cum laude, Departmental honors</i>	<b>Portland, Oregon, USA</b> 2017

## 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

<b>Research positions</b> .....	
<b>Fariborz Maseeh Dept. of Math. &amp; Stats., PSU</b> <i>Research assistant</i> Advisor: Jeffrey Ovall	<b>Portland, Oregon</b> 2016–2024
<b>Lawrence Livermore National Laboratory</b> <i>Computing scholar, summer internship</i> Mentor: Julian Andej	<b>Livermore, California</b> 2022
<b>Argonne National Laboratory</b> <i>Givens associate, summer internship</i> Mentor: Richard Tran Mills	<b>Chicago, Illinois</b> 2021

<b>Education positions</b> .....	
<b>Fariborz Maseeh Dept. of Math. &amp; Stats., PSU</b> <i>Graduate teaching assistant</i> Supervisor: Andy Flight	<b>Portland, Oregon</b> 2019–2020

## Computing Skills

Python, MATLAB, C, C++, Wolfram Mathematica, MS Excel,  $\text{\LaTeX}$ , git, Linux, MacOS, MS Windows

## Awards and Honors

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**NSF Research Training Group Graduate Fellowship (2022–2023):** 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

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- [1] Jeffrey S. Owall 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.
- [2] Jeffrey S. Owall and Samuel E. Reynolds. “Quadrature for implicitly-defined finite element functions on curvilinear polygons”. *Computers & Mathematics with Applications* 107 (2022), pp. 1–16.
- [3] Akash Anand et al. “Trefftz finite elements on curvilinear polygons”. *SIAM Journal on Scientific Computing* 42.2 (2020), A1289–A1316.
- [4] 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.
- [5] 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.
- [6] Jeffrey S. Owall 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.

## Further Information

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**Also known as:** Sam Reynolds

**Pronouns:** he/him/his

**Country of citizenship:** United States of America