

# Stephanie J. Erickson

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I am a recent PhD graduate in numerical modelling of extreme astrophysical systems. I have achieved strong academic results and have good communication skills as demonstrated by conference talks and publications. I have used several programming languages and am able to learn new skills efficiently.

## Education

**PhD in Mathematics**, University of Southampton, UK (2014)

**BSc in Engineering Science and Physics**, Smith College, USA (2010)

- Highest Honors, Summa Cum Laude, GPA: 3.98

## Professional Experience

**Postgraduate Researcher**, University of Southampton, UK (2010-2014)

- demonstrated numerical methods for astrophysical simulations
- implemented numerical codes in Fortran90, using finite volume methods for fluids and solids, including material interfaces
- communicated research results through posters, talks at conferences, and published papers
- studied general relativity, neutron stars, elasticity, and computational fluid dynamics

**Postgraduate Teaching Assistant**, University of Southampton, UK (2010-2014)

- assisted with 3-4 hour-long weekly tutorials per semester for mathematics modules including Differential Equations, Numerical Methods, Introduction to Mathematical Methods, and Mathematical Modelling
- marked student coursework, gave relevant feedback, and tracked student progress
- explained concepts and answered questions in front of the class and one-on-one with students
- managed time effectively to ensure that all students received the help they needed

**Master Tutor in Physics**, Smith College, USA (2007-2010)

- ran two-hour-long drop-in sessions twice weekly for students in introductory physics
- tutored 4 to 5 students per semester via weekly one-on-one sessions

**SURF Undergraduate Research Student**, California Institute of Technology, USA (Summer 2009)

- developed a multiply resonant electro-optic modulator to modulate the phase of laser light
- designed, prototyped, and tested a circuit

**SURF Undergraduate Research Student**, LIGO Hanford Observatory, USA (Summer 2008)

- developed a procedure for, and assessed the error in, calibrating the laser power sensors for the LIGO photon calibrators
- used high-powered lasers, learning safety procedures, optical table alignment, and the care of sensitive optical equipment

**Teaching Assistant in Computer Science**, Smith College, USA (Spring 2007)

- ran hour-long drop-in sessions twice weekly for the introductory computer science course
- marked programming assignments

## Skills

**Programming:** Fortran90, Python, Java, basic R and C/C++

**Technology:** Matlab, Linux, Bash Shell Scripting, Subversion, LaTeX, Gnuplot, basic VisIt and Github

**Numerics:** finite volume methods in fluids and elastic media, high-resolution shock-capturing methods, ghost-fluid method

## Publications

C. Gundlach, I. Hawke, and S. J. Erickson. A conservation law formulation of nonlinear elasticity in general relativity. *Classical and Quantum Gravity*, 29(1):015005, January 2012

E. Goetz, P. Kalmus, S. Erickson, R. L. Savage, Jr., G. Gonzalez, K. Kawabe, M. Landry, S. Marka, B. O'Reilly, K. Riles, D. Sigg, and P. Willems. Precise calibration of LIGO test mass actuators using photon radiation pressure. *Classical and Quantum Gravity*, 26(24):245011, December 2009