

# Madison Sheridan

## Curriculum Vitae

📞 (916) 790-7806  
✉ sheridanm@tamu.edu  
📁 helblindi.github.io

### Research Interests

Numerical methods for PDEs, Hyperbolic systems of conservation laws, Computational fluid dynamics, Compressible Euler equations, Lagrangian hydrodynamics.

### Education

2019 – present **PhD, Mathematics**, *Texas A&M University*, College Station, TX.

2015–2019 **Bachelors of Science, Mathematics (Computer Science minor)**, *Brigham Young University – Idaho*, Rexburg, ID.

### Experience

2019–present **Graduate Teaching/Research Assistant**, *Texas A&M University*, College Station, TX.

**Advisor:** Jean-Luc Guermond

- Invariant-Domain-Preserving and Exactly Conservative Approximation of the Lagrangian Hydrodynamics Equations

2022 **Graduate Student Intern**, *Lawrence Livermore National Laboratory*, Livermore, CA.

**Mentor:** Vladimir Tomov

- Implemented a first order invariant domain preserving robust finite element method

2019 - 2022 **Graduate Student Intern**, *Nevada National Security Site*, North Las Vegas, NV.

**Mentors:** Cleat Zeiler, Marylesa Howard, Daniel Champion

- Created Deep Learning model to reconstruct clipped seismic waveforms
- Developed a multilateration program utilizing a surface geophone array to geolocate a seismic signal source

### Publications

2021 Zeiler, C., McLin, K., Champion, D., Scalise, Michelle., Sheridan, M., White, R., Jensen, R., Smith, K., Plank, G., "The Monte Cristo Range Mw 6.5 Nodal Geophone Rapid Deployment"

### Talks

2021 Invariant Domain Preserving IMEX Methods, SIAM TX-LA Meeting, University of Texas Rio Grande Valley, South Padre Island, TX, USA. November 2021.

## Posters

- 2019 Seismic Clipped Waveform Reconstruction and Noise Attenuation Using Deep Learning, American Geophysical Union Fall Meeting, December 2019.

## Leadership

- 2022 **Organizer**, *Mini-symposia on "High Order Methods for Computational Hydrodynamics"*, 5th Annual Meeting of the SIAM Texas-Louisiana Section (TXLA22), November 2022.
- 2019-present **President, Vice President, Treasurer**, *Society for Industrial and Applied Math Graduate Student Chapter, Texas A&M University*.

## Outreach/Mentorship

- 2022 **Mentor**, Advised undergraduate research project for Directed Reading Program, Texas A&M University
- 2021-2022 **GED Prep Instructor**, B/CS Community Education Center, Bryan, TX
- 2019 **Proctor**, High School Math Contest, Texas A&M University
- 2013 – 2015 **Missionary**, Church of Jesus Christ of Latter Day Saints, Porto Alegre, Rio Grande do Sul, Brazil & Twin Falls, ID, USA.
- 2011 **Eagle Scout**, El Dorado Hills, CA.

## Membership

American Mathematical Society (AMS)  
Society for Industrial and Applied Mathematics (SIAM)

## Computer Languages

Proficient in: C++, Python, LaTeX, Git, Lisp, Mathematica  
Knowledgeable in: Java, JavaScript, Fortran2003, Matlab

## Languages

English Native Language  
Portuguese Intermediate Listener, Intermediate Speaker, Advanced Reader, Novice Writer