

# Mason McCallum

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## Education

<b>Southern Methodist University</b> <i>Ph.D. in Computational and Applied Mathematics, 3.8</i>	<b>Dallas, TX</b> May 2023–Present
<b>Southern Methodist University</b> <i>M.S. in Computational and Applied Mathematics, 3.8</i>	<b>Dallas, TX</b> 2021–May 2023
<b>Tartleton State University</b> <i>B.S. in Computer Science, 3.6</i>	<b>Stephenville, TX</b> 2017–2020
<b>Tartleton State University</b> <i>B.S. in Mathematics, 3.7</i>	<b>Stephenville, TX</b> 2017–2020

## Experience

### Research

<b>Modeling Topologically protected interface waves</b> <i>Research Assistant</i> I use DG schemes to model interface waves of a topologically protected phase of matter	<b>Dallas, TX</b> Present
<b>Contact Binary Star Simulation</b> <i>Lead Developer</i> I developed a simulation engine to explore an unexplained cosmological phenomenon on Nvidia GPUs.	<b>Stephenville, TX</b> 2018–2020
<b>Ramsey Theory</b> <i>Research Assistant</i> Worked to develop a heuristic to solve the open math grouping problem using Nvidia GPUS	<b>Stephenville, TX</b> 2017–2018

### Vocational

<b>Texas A&amp;M Agrilife</b> <i>Bioinformatics Research Assistant</i> I developed a bioinformatic pipeline to aid in the classification and analysis of microbial communities.	<b>Stephenville, TX</b> 2019–2021
<b>Burlington Northern Santa Fe</b> <i>Data Analyst Intern</i> <ul style="list-style-type: none"><li>○ developed a clustering algorithm to help BNSF classify emergency train brake events</li><li>○ lead a team to create computer vision software to replace radar speed sensors on BNSF tracks</li><li>○ developed a reporting tool for the root cause analysis team</li></ul>	<b>Fort Worth, TX</b> 2019

## Skills

**Programming Languages:** C/C++, Julia, Python      **Database:** SQL, Postgres, SQLite  
**Dev Tools:** Ubuntu, Git, Vim, CUDA, MPI, OpenMP, **Programming Practices:** CI/CD, Test Driven Dev, Slurm  
**Course work:** Finite element, High performance Computing, Photonics, Perturbation Methods, Stochastic Differential equations

## Awards

<b>Edwin Mougan Graduate Teaching award:</b> in recognition of valuable contributions as a TA	<i>Dallas, TX</i>
<b>NVIDIA GTC 2020:</b> Accepted to present my research	<i>San Jose, CA</i>
<b>First Place Oral presentation:</b> Meeting of Texas Academy of Science Physics section	2019
<b>Eagle Scout:</b> Boy Scouts of America	2015