

Personal Presentation

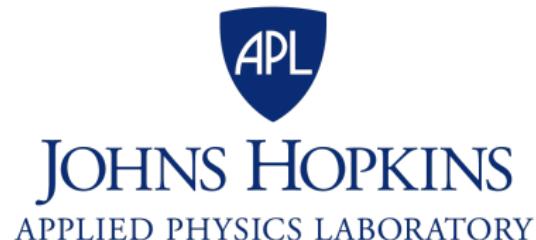
Gareth Johnson

Faculty Adviser: Prof. Ricardo Nocettono

University of Maryland
AMSC 663: Advanced Scientific Computing I
Supported by Johns Hopkins University Applied Physics Lab

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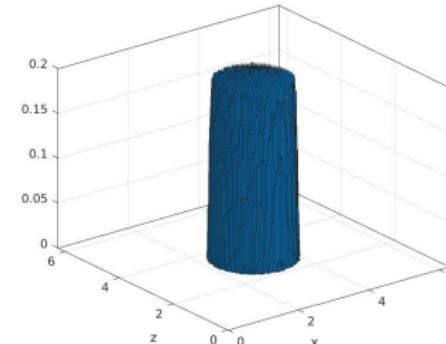
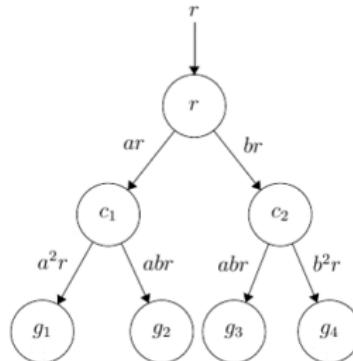
- Born outside London, England.
- B.S. in Mathematics and Computer Science from North Carolina State University in 2017.
- Interned at IBM.
- 2nd year AMSC graduate student in the Scientific Computation track.
- Recently became a full staff member at Johns Hopkins University Applied Physics Lab.



Previous Projects

- Undergraduate Research: Worked under Pierre Gremaud on modeling blood flow. Aimed to provide appropriate BC for the circulatory system lying outside a region of interest.
- REU at UMD: Worked under Jacob Bedrossian on Numerical PDEs. Studied fluid mixing and plasma mechanics. Specifically, we studied the following equations:

$$\partial_t f + \mathbf{v} \cdot \nabla f = \kappa \Delta f, \quad \partial_t p + \mathbf{v} \cdot \nabla_x p + \frac{q}{m} (\vec{E} + \mathbf{v} \times \vec{B}) \cdot \nabla_{\mathbf{v}} p = C[p].$$



Current Interests

Academic Interests:

- Numerical PDEs
- Mathematical Modeling, such as fluid mechanics and plasma physics.
- Computational Physics
- Numerical Analysis

Professional Interests:

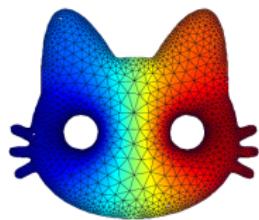
- High performance computing focusing on GPUs.
- Algorithm development for engineering problems.
- Underwater Acoustics with applications to sonar.



- Avid technology and game enthusiast.
- Novice guitar player.
- Long distance runner.
- Currently trying to teach my cat party tricks.



- Fulfill a degree requirement!
- Apply the Finite Element Method to a non-toy problem.



- Begin learning about ferrohydrodynamics. There is potential for this topic to be a large portion of my thesis.
- Advance the scientific understanding of ferrohydrodynamics through my computations.

References:

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