

Noel M. Naughton
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Education

University of Saint Thomas in Saint Paul, MN	2010 – 2014
B.S. in Mechanical Engineering, Minor in Catholic Studies – <i>Magna Cum Laude</i>	
University of Illinois at Urbana-Champaign	2014 – 2016
M.S. in Mechanical Engineering	
Master's Thesis: <i>A Lattice Boltzmann Method of Diffusion-Weighted Magnetic Resonance Imaging in Skeletal Muscle</i>	
University of Illinois at Urbana-Champaign	2016 – Fall 2019 (expected)
Ph.D. in Mechanical Engineering	
Dissertation (working title): <i>Determination of Skeletal Muscle Microstructure from Diffusion MRI and Relationship with Muscle Quality</i>	

Research Experience

NSF Graduate Research Fellow – University of Illinois at Urbana-Champaign	2016 – 2019
Graduate Research Assistant – University of Illinois at Urbana-Champaign	2014 – 2016
Undergraduate Research Assistant – University of St. Thomas	2012 - 2014

Fellowships & Grants

NSF Graduate Research Fellow

XSEDE startup allocation – 50,000 CPU hours & 5000 GPU hours on SDSC Comet cluster

Publications & Patents

Naughton, NM, and Georgiadis JG. Comparison of two-compartment exchange and continuum models of dMRI in skeletal muscle. *Physics in Medicine & Biology* (2019). doi: [10.1088/1361-6560/ab2aa6](https://doi.org/10.1088/1361-6560/ab2aa6).

Plourde, B., Abraham, J., Plourde, D., Pakonen, R., Gikling, A. and **Naughton, N.**, Wts Llc, 2016. *Fluid heating system*. U.S. Patent Application 14/954,292.

Naughton NM, Plourde BD, Stark JR, Hodis S, Abraham JP. Impacts of waveforms on the fluid flow, wall shear stress, and flow distribution in cerebral aneurysms and the development of a universal reduced pressure. *Journal of Biomedical Science and Engineering*. 2014 Jan 2;7(01):7. doi: [10.4236/jbise.2014.71002](https://doi.org/10.4236/jbise.2014.71002).

Publications in Process

Naughton, NM and Georgiadis JG. Global Sensitivity Analysis of Skeletal Muscle dMRI: Effects of Microstructural and PGSE Pulse Parameters. *Magnetic Resonance in Medicine*, (in revision). [pre-print](#)

Naughton NM, Tennyson C, and Georgiadis JG. Lattice Boltzmann method for simulation of diffusion magnetic resonance imaging physics in heterogeneous tissue models. Journal of Computational Physics, (submitted). arXiv preprint: [arXiv:1907.00908](https://arxiv.org/abs/1907.00908)

Naughton NM and Georgiadis JG. Histology informed simulations of diffusion MRI in skeletal muscle explains transverse ellipticity of diffusion tensor. NMR in Biomedicine (in preparation).

Conference Presentations and Posters

Naughton NM and Georgiadis JG. Connecting Diffusion MRI to Skeletal Muscle Microstructure: Leveraging Meta-Models and GPU-acceleration. PEARC19 (July 2019), Chicago, Illinois (in press [preprint](#))

Naughton NM, Gallo NR, Anderson AT, and Georgiadis JG. Comparison of dMRI Models for Skeletal Muscle Microstructure Estimations with Numerical Simulations and Myocardial Porcine Phantom. ISMRM Annual Meeting (May 2019), Montreal, Canada (poster) [abstract](#)

Naughton NM, Jain A, and Georgiadis JG. Polynomial Meta-Model of Bloch-Torrey Equation for Track-based Regularization of Microstructural Inversion. ISMRM Annual Meeting (May 2019), Montreal, Canada (poster) [abstract](#)

Naughton NM, Wang A, and Georgiadis JG. Fascicle Ellipticity as an Explanation of Transverse Anisotropy in Diffusion MRI Measurements of Skeletal Muscle. ISMRM Annual Meeting (May 2019), Montreal, Canada (poster) [abstract](#)

Naughton NM, Gallo NR, Anderson AT, and Georgiadis JG. Microstructural Parameter Estimation of Skeletal Muscle using Random Forest Model of dMRI. ISMRM Annual Meeting (May 2019), Montreal, Canada (poster) [abstract](#)

Naughton NM, Gallo NR, Vaicik M, Anderson AT, Sutton BP, and Georgiadis JG. “Estimation of Extracellular Matrix Diffusion Properties in Decellularized Porcine Myocardium from DTI” ISMRM Annual Meeting (June 2018), Paris, France (poster) [abstract](#)

Naughton NM and Georgiadis JG. Effect of Exercise on Myocellular Lipid Content and Diffusion Tensor Imaging Measurements. Biomedical Engineering Society Annual Meeting (October 2017), Phoenix, Arizona (platform presentation)

Naughton NM and Georgiadis JG. Effect of Sarcolemma Water Permeability on Muscle DTI Measures Following Exercise. Biomedical Engineering Society Annual Meeting, (October 2016), Minneapolis, Minnesota (platform presentation)

Teaching and Professional Experience

Men's Assistant Coach – Illinois Rowing Club	2015 – 2018
Graduate Teaching Assistant – University of Illinois at Urbana-Champaign ME 320: Intro to Heat Transfer and ME 520: Conductive Heat Transfer	2017, 2019
Undergraduate Teaching Assistant – University of St. Thomas Introduction to Heat Transfer, Finite Element Analysis & Introduction to Fluid Mechanics Lab	2013 – 2014
Design Engineer – WTS, St. Paul, MN	Summer 2014
Special Projects Intern – IT Department, University of St. Thomas	2013 - 2014
Leadership Intern – Center of Catholic Studies, University of St. Thomas	2012 - 2014
Resident Advisor – Ireland Hall, University of St. Thomas	2011 – 2013

Professional Societies

- International Society for Magnetic Resonance in Medicine (ISMRM)
- Biomedical Engineering Society (BMES)
- Society of Catholic Scientists (SCS)

Graduate Courses

GPA: 3.70

Year	Semester	Course Title	Grade	Instructor
2014	Fall	Magnetic Resonance imaging	B+	Zhi-Pei Liang
2014	Fall	Intermediate Heat Transfer	A	Nenad Miljkovic
2015	Spring	Intermediate Gas Dynamics	A-	M. Quinn Brewster
2015	Spring	Heat Conduction	A	Arne Pearlstein
2015	Fall	Viscous Flow and Heat Transfer	A	M. Quinn Brewster
2015	Fall	Mathematical Methods I	A-	Prashant Mehta
2016	Spring	Convective Heat Transfer	A-	Nenad Miljkovic
2016	Spring	Mathematical Methods II	A	Prashant Mehta
2016	Spring	Continuum Mechanics	B	Harley Johnson
2016	Fall	Intermediate Fluid Mechanics	A-	Randy Ewoldt
2016	Fall	Computational Mechanics	A	Paul Fisher
2017	Spring	Soft Solids	A	Sascha Hilgenfeldt
2017	Spring	Computational Fluid Mechanics	B	Carlos Pantano-Rubino
2017	Fall	Solid Mechanics I	B+	Petros Sofronis
2017	Fall	Viscoelasticity Theory	A	Harry Hilton
2019	Spring	Science Communication for Mechanical Engineers	A	Amy Wagoner Johnson