

Tom Overman

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Education

Northwestern University

PhD in Applied Mathematics - In Progress (Started Fall 2020)

University of Texas at Arlington

Bachelor of Science - Mathematics, Biomedical Engineering

Graduated Summa Cum Laude, May 2020

GPA: 4.0

Research Experience

Undergraduate Mathematics Research, University of Texas at Arlington, December 2019-Present

- Continued work with Dr. Ambartsoumian on fully-3D image reconstruction for new PET detection geometries
- Significant coding implementation of methods and work on speeding up algorithms
- Analysis of limited angle problems arising with new geometry

Research in Industrial Projects for Students (RIPS) Summer Research Program at the Institute for Pure and Applied Mathematics at UCLA, June 2019 - August 2019, Los Angeles, CA

- A nine-week summer research program at the Institute for Pure and Applied Mathematics at UCLA focusing on applied mathematics used in industrial projects
- Worked with Dr. Robert Falgout from Lawrence Livermore National Laboratory (LLNL) on developing a parallel-in-time algorithm for nonlinear PDE-constrained optimization problems using multigrid methods
- Contributed to the XBraid parallel-in-time open-source software developed by LLNL
- Significant work in numerical analysis, C programming, and parallel programming

Center for Undergraduate Research in Mathematics Research Program in Survival Analysis, University of Texas at Arlington, August 2018 - June 2019, Arlington, TX

- Worked with Dr. Suvra Pal and a group of other students on ideas in survival analysis. Most of the work was focused on properties of the generalized gamma distribution and parameter estimation for right-censored lifetime data
- Significant simulation and testing using R
- Program funded by NSF-funded CURM program

REU in Mathematics of Medical Imaging, University of Texas at Arlington, August 2017 - August 2018, Arlington, TX

- Worked with Dr. Gaik Ambartsoumian on the Mathematics of Medical Imaging

- Using mathematical methods such as the Radon Transform, Back Projections, and Filtering for medical imaging applications and simulation. Explored more advanced extensions such as the V-line Radon transform
- Included significant modeling of systems in Matlab
- Program funded by NSF

Work Experience

Planet Access, Software Developer and IT Consultant, June 2017 - Present, Irving, Texas

- Server building, backup development, software optimization, and system automation
- Software development in Python, Ruby, JavaScript. Included development of complex architectures such as project management systems and payment systems.
- Significant work with Linux systems, remote servers, and bash scripting
- Communicate effectively with clients to develop useful technological solutions

Presentations

Oral Presentations:

“On Some Flexible Statistical Distributions to Model Lifetime Data” - 99th Annual Conference of the Texas Section of the Mathematical Association of America - Tarleton State University - March 2019

“A Parallel-in-Time Multigrid Approach to Constrained Optimization” - RIPS Project Day at The Institute for Pure and Applied Mathematics - University of California, Los Angeles - August 2019

“A Parallel-in-Time Multigrid Approach to Constrained Optimization” - Joint Mathematics Meeting - Denver, CO - January 2020

Poster Presentations:

“Use of Parametric Distributions to Model Survival Data and Associated Model Discrimination” - Gulf States Math Alliance Conference - University of Texas at Arlington - February 2019

“A Parallel-in-Time Multigrid Approach to Constrained Optimization” - Joint Mathematics Meeting - Denver, CO - January 2020 (Winner of Outstanding Poster Award)

Awards and Scholarships

- College of Engineering Dean’s List
- College of Science Dean’s List
- UTA Presidential Scholarship - Awarded four consecutive years
- Janet and Mike Greene Endowed Engineering Scholarship
- 2020 Joint Mathematics Meeting Outstanding Poster Award
- UTA Department of Mathematics Outstanding Senior Award

Skills and Qualifications

- Proficient with: Python, C, Matlab, Java, HTML, CSS, PHP
- Experience with: R, Ruby, JavaScript, MySQL, LaTeX, Solidworks, COMSOL

Relevant Upper-level Coursework

- Differential Equations, Linear Algebra, Analysis I, Abstract Algebra (Groups, Rings, Galois Theory), Discrete Mathematics, Mathematical Statistics, Numerical Analysis (Linear Algebra, ODEs, PDEs, Approximation Theory), Complex Variables
- Biomechanics and Fluid Flow, Linear Systems in Bioengineering, Digital Signal Processing
- Special Topics: Neural and Cognitive Modeling, Mathematics of Medical Imaging
- Significant undergraduate coursework in biology, chemistry, organic chemistry, and physics