

DANIEL NICHOLS

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1047 Bucktail Way, West Chester PA

EDUCATION

University of Tennessee, Knoxville

Undergraduate

Computer Science

August 2017 - Present

Overall GPA: 3.92/4.0

Major GPA: 4.0/4.0

RESEARCH EXPERIENCE

**Innovative Computing Laboratory &
Joint Institute for Computer Science (JICS)**

October 2018 - Present

Oak Ridge National Laboratory,

University of Tennessee, Innovative Computing Laboratory

Undergraduate Research Assistant

JICS REU

May - August 2019

Oak Ridge National Laboratory,

University of Tennessee

Research Assistant

ACADEMIC ACHIEVEMENTS

Honors Computer Science

Honors Engineering

Dean's List, *University of Tennessee, Knoxville*

TEACHING EXPERIENCE

Undergraduate Teaching Assistant

Fall 2019

University of Tennessee

COSC 140 - Data Structures and Algorithms I

PUBLICATIONS

MagmaDNN: Towards High-Performance Data Analytics and Machine Learning for Data-Driven Scientific Computing

- **Daniel Nichols**, Natalie-Sofia Tomov, Frank Betancourt, Stanimire Tomov, Kwai Wong, and Jack Dongarra, MagmaDNN: Towards high-performance data analytics and machine learning for data-driven scientific computing, ISC High Performance (Frankfurt, Germany), Workshop, Springer International Publishing, Springer International Publishing, 2019-06 2019.

MagmaDNN: Accelerated Deep Learning Using MAGMA

- **Daniel Nichols**, Kwai Wong, Stan Tomov, Lucien Ng, Sihan Chen, and Alex Gessinger. 2019. MagmaDNN: Accelerated Deep Learning Using MAGMA. In Practice and Experience in Advanced Research Computing (PEARC 19), July 28-August 1, 2019, Chicago, IL, USA.ACM.

openDIEL: A Parallel Workflow Engine and Data Analytics Framework

- Frank Betancourt, Kwai Wong, Efosa Asemota, Quindell Marshall, **Daniel Nichols**, Stan Tomov. 2019. openDIEL: A Parallel Workflow Engine and Data Analytics Framework. In Practice and Experience in Advanced Research Computing (PEARC 19), July 28-August 1, 2019, Chicago, IL, USA.ACM.

PRESENTATIONS & TALKS

MagmaDNN: Accelerated Deep Learning Using MAGMA

- In *Performance Evaluation and Improvement* session at PEARC '19. ACM.
<https://pearc19.conference-program.com/session/?sess=sess196>

Distributed and High Performance Deep Learning

- Innovative Computing Laboratory Talk.
<http://icl.cs.utk.edu/newsletter/presentations/2019/Nichols-MAGMADNN-08-30-2019.pdf>

NON-PEER-REVIEWED PAPERS

MagmaDNN: Towards High-Performance Deep Learning Using Magma

- **Daniel Nichols**, Sedrick Keh, Kam Fai Chan. 2019. MagmaDNN: Towards High-Performance Deep Learning Using Magma. JICS REU Final Report. jics.utk.edu/files/images/recsem-reu/2019/magmadnn/Report.pdf

MagmaDNN: Applications in Materials Science

- Sedrick Keh, **Daniel Nichols**, Kam Fai Chan. 2019. MagmaDNN: Applications in Materials Science. JICS REU Final Report. jics.utk.edu/files/images/recsem-reu/2019/materials/Report.pdf

Ising Physics Simulations using MagmaDNN

- Kam Fai Chan, Sedrick Keh, **Daniel Nichols**. 2019. Ising Physics Simulations using MagmaDNN. JICS REU Final Report. jics.utk.edu/files/images/recsem-reu/2019/materials/Report.pdf

SOFTWARE PROJECTS

MagmaDNN

high performance deep learning framework

github.com/MagmaDNN/magmadnn

AWARDS & FUNDING

UT Volunteer Scholarship (x3)

Herbert & Lillian Duggan Scholarship

Edgar Wyman McCall Scholarship (x2)

Frederick T Bonham Scholarship

Harlan D Mills Scholarship (x2)

Henry, Robert & Velma Scholarship (x2)

RELEVANT COURSES

Core Courses

Hon. Algorithms and Data Structures I & II

Hon. Discrete Structures

Parallel Computing

Systems Programming

Pattern Recognition

Advanced Algorithms & Data Structures

Compilers

Hon. Calculus I-III

Graph Theory

Probability and Random Variables

Operating Systems

Algorithm Analysis

Matrix Algebra

Adv. Algorithms & Data Structures

RESEARCH STRENGTHS

Computer Languages

C/C++, Python, Julia, Fortran, CUDA

Software & Tools

LaTeX, Excel, Mathematica, Matlab, Matplotlib

Deep Learning

Tensorflow, PyTorch, MxNet, keras

Parallel & Scientific Computing

LAPACK, BLAS, MAGMA, MPI, OpenMPI, CUDA,
LINPACK, IntelMKL, NCCL

Community Involvement

Active Math.StackExchange User (~58k people reached)

math.stackexchange.com/users/274085

Language

English, German (read & write)