JOEL VENZKE

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SUMMARY

One and a half years of research experience in computational science
Experience using supercomputing technologies such as Stampede (TACC) and Gordan (SDSC)
Experience in data and numerical analysis
Presented research at local, regional, and national conferences
Quick to learn new skills, techniques, and algorithms

EDUCATION

Drake University *August 2012 - May 2016 (expected)*
B.S. in Computer Science, Mathematics, and Physics Cumulative GPA: 3.85
Society of Physics Students Chapter President
Math Club Vice President
Physics Tutor

RESEARCH EXPERIENCE

Computational Atomic Physics, Ultrafast Electronic Dynamics August 2014 - Present
Undergraduate Researcher *PI: Klaus Bartschat, Ph.D.* *Drake University*

· Simulated ultrafast laser pulse interactions on the hydrogen atom
· Used Fortran and OpenMP to parallelize wave-function propagation
· Interfaced with XSEDE Supercomputers such as Stampede (TACC) and Gordan (SDSC)
· Preformed numeric testing and data analysis

Computational Bioinfromatics, Automating NRM Assignment September 2013 - Present
Undergraduate Researcher *PI: Timothy Urness, Ph.D.* *Drake University*

· Automated the assignment of error prone nontrivial NMR datasets
· Implemented Artificial Intelligence based algorithms in Python
· Interfaced with machine learning software
· Worked with Unit testing software

American Mathematical Society (AMS), Sage Math September 2013 - May 2014
Undergraduate Researcher *PI: Jason Grout, Ph.D.* *Drake University*

· Developed open source math software
· Trained new developers on code base
· Developed pythreejs, a Python/three.js bridge for web-based graphics

Signal and Image Analysis, MCTP Pre-REU June 2013 - July 2013
Undergraduate Researcher *PI: Gregory Berkolaiko, Ph.D.* *Texas A&M University*

· Developed fraud protection software
· Implemented signature analysis algorithms in MatLab
· Applied Fourier Analysis and Wavelet Decomposition to analyze signatures
· Tested algorithms performance against a signature database

ADDITIONAL EXPERIENCE

The Times-Delphic September 2012 - Present
Photo Editor/Staff Photographer *Des Moines, IA*

· Trained and managed staff photographers
· Produced quality work within strict deadlines
· Photographed major events and stories

TECHNICAL STRENGTHS

Languages	Python, C/C++, Java, Fortran, Bash Scripting
Parallel Computing	CUDA, OpenMP
Software Skills	Vim, Sublime Text, Git, Gnuplot, LaTeX, Command Line, ssh/sftp
Operating Systems	Mac OSX, Linux, Windows 7
Specialties	Parallel Computing, Artificial Intelligence, Data Analysis

RESEARCH PRESENTATIONS AND PUBLICATIONS

Presentations

- Joel Venzke. "Pulse-Shape Effects on the Autler-Townes Doublet in Strong-Field Ionization of Atomic Hydrogen". Tuscan, AZ, October 2014. Frontiers In Optics: 98th OSA/APS Annual Meeting (FiO 2014). Poster
- Joel Venzke. "Automated Assignment Of Backbone NMR Data with A*". Verona, Wisconsin, April 2013. Midwest Instruction and Computing Symposium (MICS). Talk
- Joel Venzke "Automated Assignment Of Backbone NMR Data with A*". Des Moines, Iowa, April 2013. Drake University Conference on Undergraduate Research in the Sciences (DUCERS). Talk
- Joel Venzke "Signature Authentication Using Wavelets and Fourier Analysis". College Station, Texas, July 2013. Mentoring through Critical Transition Points Symposium (MCTP). Talk

Conference Publications

- Joel Venzke. "Automated Assignment Of Backbone NMR Data with A*". Verona, Wisconsin, April 2013. Midwest Instruction and Computing Symposium (MICS).

HONORS/AWARDS

Drake University Presidents List	Spring 2014
Drake University Top Sophomore	Spring 2014
Drake University Deans List	Fall 2012 - Fall 2013
Drake Physics Prize Scholarship, Full Tuition	Spring 2012
Drake University Presidential Scholarship	Spring 2012
Boy Scouts of America Eagle Scout Award	Spring 2012