John R. Emmons

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OBJECTIVE

Obtain a research position consistent with my academic interests that will prepare me for research at the graduate level.

EDUCATION

Bachelor of Science
Drake University, Des Moines, IA, expected transfer May 2014
 Majors: Computer Science, Mathematics, and Physics
 GPA: 4.00

Bachelor of Science
Columbia University, New York, NY, expected May 2016
 Major: Electrical Engineering
 Planned transfer through combined engineering program

RESEARCH EXPERIENCE

Scalable Metadata Scans for Large Parallel File Systems
University of California, Berkeley, Summer 2013
- Principal investigator: Matthew Andrews, Ph.D.
- Developed algorithms for efficient parallel file system scans
- Used Apache Hadoop and MapReduce model to perform distributed computing

Automated Assignmnet of Back NMR Data with Artificial Intelligence
Drake University, Fall 2012 - Present
- Principal investigator: Timothy Urness, Ph.D
- Applied informed and uninformed search algorithms to assign protein chains
- Designed several data structures for easy manipulation of protein information

Structural Studies of a Calmodulin Mutant with Defective Muscle Regulation
Drake University, Summer 2012, Spring 2013 - Present
- Principal investigator: Adina Kilpatrick, Ph.D.
- Investigated V91G calmodulin mutant at low levels of calcium
- Used NMR techniques to gather data on protein samples
- Inferred changes in conformation of mutant calmodulin

International Relations Teaching Aid Development
Drake University, Spring 2012
- Principal investigator: Timothy Urness, Ph.D.
- Wrote software in Java to display the relations between countries
- Researched cases in international politics and applied theory in applet

PROFESSIONAL EXPERIENCE

Assistant Residence Hall Coordinator
Drake University Residence Life, Fall 2013 - Spring 2014 (recently hired)
- Manage a staff of resident assistants and front desk workers
- Provide support to staff and residents during crisis situations
- Allocate/manage residence hall funds

Resident Assistant
Drake University Residence Life, Fall 2012 - Spring 2013
- Provide leadership and counseling services during crisis situations
- Negotiate compromise and cooperation among residents
- Utilize limited time and resources to execute community building activities

Assistant Teacher
West Suburban Summer School, Summer 2010 and 2011
- Prepared history lectures for students
- Engaged students in critical thinking exercises
- Enforced behavior policies and ensured student safety

AWARDS
- **Barry Goldwater Scholarship** winner 2013
- Drake University Physics Prize winner (Full-tuition scholarship)
- Drake University Presidents List: Fall 2011-Spring 2013 (4.0 GPA)
- Drake University DUSCI research fellowship recipient: Summer 2012
- Drake University STAR travel fund recipient: Fall 2012 and Spring 2013

LEADERSHIP
- President of Society of Physics Students (SPS)
- President of Math Club
- College of Arts and Sciences Student Advisor Board member

PROGRAMMING LANGUAGES

Strong: C++ and Fortran
Proficient: Java, Perl, and Scheme
Some Experience: C#, Haskell, Prolog, Python, MATLAB, and VBA

COMPETENCIES
- Proficient with LaTeX scientific typesetting software
- Strong understanding of statistics and error analysis techniques
- Background in NMR data collection and analysis on proteins
- Proficient with Microsoft Office programs

PUBLICATIONS

Emmons, John R. "Automated Assignment of Backbone NMR Data with Artificial Intelligence" Midwest Instruction and Computing Symposium (MICS) Iowa, Des Moines. 19 April 2013. Conference publication.

Emmons, John R. "Structural Studies of a Calmodulin Mutant with Defective Regulation of Muscle Contraction." DUSCI Final Research Presentation. Iowa, Des Moines. 20 July 2012. Lecture.

CONFERENCE SUBMISSIONS

Emmons, John R. "Automated Assignment of Backbone NMR Data with Artificial Intelligence" Drake University Conference on Undergraduate Research in the Sciences (DUCURS). Iowa, Des Moines. 11 April 2013. Lecture.

Emmons, John R. "Automated Assignment of Backbone NMR Data with Artificial Intelligence" Midwest Instruction and Computing Symposium (MICS) Iowa, Des Moines. 19 April 2013. Lecture.

Emmons, John R. "Structural Studies of a Calmodulin Mutant with Defective Regulation of Muscle Contraction." DUSCI Final Research Presentation. Iowa, Des Moines. 20 July 2012. Lecture.

Emmons, John R. "Structural Studies of a Calmodulin Mutant with Defective Regulation of Muscle Contraction." Great Plains Regional Symposium on Protein & Biomolecular NMR. Kansas, Lawrence. 2 Nov. 2012. Poster Presentation.