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DAVIS REMPE

INTERESTS

Computer Graphics, Physically-Based Simulation/Modeling, Computer Vision, Data Visualization

EDUCATION

B.S. in Computer Science, B.S. in Mathematics, Minor in Physics

University of Nebraska – Lincoln (UNL)

2012 - Present

- Expected date of graduation: December, 2016
- GPA: 3.932, Computer Science/Math GPA: 4.0
- Completed 24 credit hours in Johnny Carson School of Theatre & Film

Education Abroad

Anglo-American University - Prague, Czech Republic

Summer 2014

- Lived in Prague for two months in the summer while taking three classes.

High School Diploma

Lincoln Southwest High School - Lincoln, NE

2008 - 2012

- GPA: 4.29

ACHIEVEMENTS AND AWARDS

Lehigh Smart Spaces REU Site Outstanding Project

2016: As chosen by a faculty panel at culmination of summer REU.

Undergraduate Creative and Research Experience (UCARE) Award Recipient

2015 – 2016: Funding for individual computer science research for the academic year.

2013 – 2014**:** Funding for group physics research for the academic year.

Eunice Stout Scholarship Recipient

2016

D & F Eastman Scholarship Recipient

2013 – Present

Regents Scholarship Recipient

2012 – 2016

Honors Program Book Scholarship Recipient

2012 – 2016

Hixon-Lied College of Fine and Performing Arts Dean's List

Spring/Fall 2013, Spring/Fall 2014, Fall/Spring 2015, Spring 2016

College of Arts and Sciences Dean's List

Fall 2012, Spring/Fall 2013, Spring/Fall 2014, Fall/Spring 2015, Spring 2016

UNL High Scholar

2013, 2014, 2015

College of Arts and Sciences Celebration of Excellence for Academic Achievement

Spring 2013

RESEARCH EXPERIENCE

Lehigh Smart Spaces REU Site Research Intern under Dr. Brian Chen, Lehigh University

May, 2016 – July, 2016

- Researched effectiveness of using Google Cardboard as an inexpensive augmented reality platform. Developed a library on Android for creating augmented reality applications with the Cardboard, implemented application for 3D bone model visualization based on marker tracking using this library.
- Awarded Outstanding Project by faculty panel.

Undergraduate Researcher under Dr. Stephen Reichenbach, UNL

June, 2015 – June, 2016

- Research data alignment algorithms for comprehensive two-dimensional gas chromatography.
- Awarded UCARE funding for 15-16 academic year.

Undergraduate Researcher under Dr. Aaron Dominguez, High Energy Physics Lab, UNL

January, 2013 – May, 2014

- Characterization and construction of silicon pixel detectors for CMS experiment at CERN. Programmed gantry system for detector construction. Minor data analysis using ROOT framework.
- Awarded UCARE funding for 13-14 academic year.

Undergraduate Researcher under Dr. Timothy Gay, Polarized Electron Physics Lab, UNL

June, 2012 – September, 2012

- Research and refurbished vacuum pump system. Polarized light optics project.

PROFESSIONAL EXPERIENCE

Research and Development Intern, GC Image, Lincoln, NE

August, 2016 – Present

- Researching, designing, and implementing algorithms for the analysis and visualization of gas chromatography data.

Software Development Intern, GC Image, Lincoln, NE

August, 2014 – August, 2015

- Worked on large-scale scientific software for visualizing and analyzing comprehensive two-dimensional gas and liquid chromatography data. Required computer programming (largely in Java), software development, software testing, and technical documentation.

TEACHING EXPERIENCE

Teaching Assistant for CSCE 310H – Honors Data Structures and Algorithms

Spring 2016

Coding Seminar Teacher for Society of Physics Students

Fall 2014 – Spring 2016

- Lead a weekly class that teaches undergraduates from the Society of Physics Students introductory programming concepts by learning C++.

MEMBERSHIP

University Honors Program

2012 – Present

- Requires extra academic achievements to be fulfilled throughout undergraduate education, including 24 hours of honors classes and completion of senior thesis.

Society of Physics Students

2012 – Present

- Secretary: 2014 – 2016. Coding seminar teacher.
- Group of students passionate about physics and exploring the discipline further. Participated in many volunteering and scientific outreach opportunities including: Public Nights at Behlen Observatory, Astronomy Day, and Science Olympiad National Competition 2015.

Math Club

2012 – Present

Upsilon Pi Epsilon, International Computer Science Honor Society

Fall 2015 – Present

Pi Mu Epsilon, National Mathematics Honorary Society

Fall 2014 – Present

Phi Eta Sigma, National Freshmen Honor Society

Spring 2013 – Present

Alpha Lambda Delta, National Freshmen Honor Society

Spring 2013 – Present

PUBLICATIONS

S. Reichenbach, **D. Rempe**, Q. Tao, D. Bressanello, E. Liberto, C. Bicchi, S. Balducci, and C. Cordero. "Alignment for Comprehensive Two-Dimensional Gas Chromatography with Dual Secondary Columns and Detectors." *Analytical Chemistry*, 87:10056-10063, 2015.

D. Rempe, S. Reichenbach, Q. Tao, C. Cordero, C. A. Zini. “Effectiveness of Global, Low-Order Polynomial Transformations for GC x GC Data Alignment.” *Analytical Chemistry*, In Review.

D. Rempe, J. Smith, B. Chen. “Mobile Augmented Reality Platform for Inexpensive Head-Mounted Display.” In Preparation.

SKILLS

Selected Classwork

- Matrix Theory, Numerical Linear Algebra, Differential Equations, Intro to Partial Differential Equations, Numerical Analysis, Computer Graphics, Introduction to Data Mining, Digital Motion Graphics, Digital Visual Effects, Digital Animation.

- **Independent Study in Advanced Computer Graphics**: focused on projects dealing specifically with physically-based simulations.
- **Senior Design Project**: year-long group project dealing with dynamic usage of white-space broadcast TV bands. Served as Development Manager for the project.

Programming Languages

- Java, C++, Python, MATLAB, OpenGL, OpenGL ES, WebGL, JavaScript, HTML, MySQL

Operating Systems

- Microsoft Windows, Linux (Ubuntu)

Selected Software

- Git, Eclipse, Atom, Android Studio, Adobe After Effects, Autodesk Maya

REFERENCES

Dr. Stephen Reichenbach, Research Advisor

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Dr. Brian Y. Chen, Research Advisor

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