

DAVIS REMPE

INTERESTS Computer Graphics, Physically-Based Simulation/Animation, 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 while taking three classes.
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ACHIEVEMENTS **Lehigh Smart Spaces REU Site Outstanding Project**

AND AWARDS 2016: 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 – 2016

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, Spring/Fall 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

- Researched 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.
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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, specifically ion blob detection.

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.
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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.

Math Club

2012 – Present

Upsilon Pi Epsilon, International Computer Science Honor Society

Pi Mu Epsilon, National Mathematics Honor Society

Phi Eta Sigma, National Freshmen Honor Society

Alpha Lambda Delta, National Freshmen Honor Society

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- ## PUBLICATIONS
- **D. Rempe**, J. Smith, B. Chen, *Mobile Augmented Reality Platform for Inexpensive Head-Mounted Display*, In Preparation.
 - **D. Rempe**, S. Reichenbach, Q. Tao, C. Cordero, C. A. Zini, *Effectiveness of Global, Low-Degree Polynomial Transformations for GC x GC Data Alignment*, *Analytical Chemistry*, DOI: 10.1021/acs.analchem.6b02254, 2016.
 - 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, pp. 10056-10063, 2015.

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- ## CONFERENCE PRESENTATIONS
- **D. Rempe**, S. Reichenbach, and S. Scott, *Alignment for Comprehensive Two-Dimensional Gas Chromatography (GCxGC) with Global, Low-Order Polynomial Transformations*, UNL Spring Research Fair Poster Session, Lincoln, NE, April, 2016.

SKILLS **Selected Coursework**

- 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 (Fall 2016)**: focused on implementing a 3D, grid-based fluid simulation.
- **Senior Design Project (Spring/Fall 2016)**: year-long group project dealing with dynamic usage of white-space broadcast TV bands. Served as Development Manager for the project.

Programming Languages (* indicates substantial experience)

- Java*, C++, Python, MATLAB, OpenGL, OpenGL ES, WebGL, JavaScript

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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