

Ian Cottingham

Jeffrey S. Raikes School of Computer Science and Management
University of Nebraska – Lincoln
123 Kauffman Center
Lincoln, NE 68508

Phone: (402) 472-3835
Fax: (402) 472-5101
Email: ian@unl.edu

Professional Preparation

Ph.D. in Computer Engineering, University of Nebraska – Lincoln, 2018 (expected)

M.S. in Computer Science, University of Nebraska – Lincoln, 2009

B.S. in Computer Science (double major in German), University of Nebraska – Lincoln, 2002

Appointments

2013 – Present: Director of Design Studio, JS Raikes School, University of Nebraska – Lincoln.

2012 – Present: Assistant Professor of Practice, JS Raikes School, University of Nebraska – Lincoln.

2011 – 2012: Managing Director of iLab, Dept. of CSE, University of Nebraska – Lincoln.

2003 – 2012: Software Architect, Dept. of CSE, University of Nebraska – Lincoln.

1998 – 2002: Preprofessional Engineer, IBM, Somers, NY.

Employment

Jeffrey S. Raikes School of Computer Science and Management, University of Nebraska – Lincoln, NE

Assistant Professor of Practice and Director of Design Studio, May 2012 – Present

- Served as Associate Director of the Raikes School from July 1 to December 31, 2015, responsible for academic and non-academic operations of the School during the transition to a new executive director.
- Responsible for Design Studio organization of 130 faculty, staff, and student developers building software for >25 industry partners annually.
- Led integration effort to expand Design Studio to provide capstone courses outside of the Raikes School to any student majoring in computer science, computer engineering, or software engineering, and any student minoring in informatics, or software development.
- Grew Design Studio revenue by 80% to \$900,000 annually, and managed industry relationships with over 30 companies including Microsoft, IBM, Mutual of Omaha, Cerner, and HDR.
- Restructured curriculum and engineering process to focus on rapid release-driven software development, enhancing the scope and quality of software developed in Design Studio.
- Program director for computer science program in the Raikes School, teaching Software Engineering, Software Architecture, Design Thinking, and Programming Languages.
- Responsible for the strategic positioning of the Raikes School as a leader in Design Thinking: co-developed a Design Thinking course, served as co-team lead on a partnership with Stanford through the Pathways to Innovation program, developed courses focused on interdisciplinary concepts relative to innovation.

Red Brain inc., Lincoln, NE

President, December 2009 – December 2015

- Co-Founder and chief executive of a spin-off venture from the University of Nebraska - Lincoln to commercialize software products from research generated intellectual property.
- Architect of law enforcement software to identify persons of interest in the field.
- Lead developer of application back-end and mobile application front-end.
- Successfully negotiated intellectual property license from University of Nebraska to bring the software to market, a software reseller agreement to increase speed of market entry of the product, and final sale of the intellectual property to a competitor.

Department of Computer Science and Engineering, University of Nebraska – Lincoln, NE

Software Architect, January 2003 – May 2012

- Responsible for a software development organization of 9 professional engineers developing software products to support grant funded research. The organization helped secure over \$10 million of funding between 2003 and 2009.
- Architect and lead developer of a framework for deployment of multiple GIS-based decision support applications into a common application base, integrating with legacy CORBA components, GIS systems, and data repositories.
- Architect of a federated data discovery system for integrating large taxonomic and genomic data sets.
- Architect and lead developer of a web-application to integrate historical datasets describing the growth of 19th century America.
- Lead author of a data specification for the Association of Information Referral Systems in partnership with the Nebraska Public Policy Center.
- Led the development effort for implementing both application and framework architectures and created user-level web application interfaces for multiple research projects.
- Supervised graduate student research projects and taught Introduction to Software Engineering.
- Worked with private sector IT clients as Managing Director of CSCE Innovation Labs to create lecture series and software engineering projects to foster greater interaction with CSE students and research faculty.
- Interacted with research partners to create software to encapsulate methodologies for climate and risk analysis into the enterprise framework for application development. Managed the requirements process and transitioned the application base from disparate systems into a single cohesive service framework.

OrangePeel Inc., Lincoln, NE

President, March 2003 – December 2008

- Co-Founder of a software company to develop knowledge management software with a focus on industry process management and workflow automation.
- Managed requirements process with partner insurance company to determine software use cases and identify business process rules for software.
- Architected data management, image archival and business process automation software solution for the management of insurance policies.
- Led development of an insurance claims archival web framework.
- Oversaw development of policy management software.

J.D. Edwards Honors Program, University of Nebraska – Lincoln, NE

Special Topics Lecturer, August 2002 – December 2005

- Lectured on special topics for Software Engineering, Intro to CS and Junior/Senior design courses.
- Provided project software architecture and design support for junior/senior design course, working directly with teams and clients, and lecturing on various software engineering topics in class.

IBM Global Services, Business Innovation Services, White Plains, NY

Preprofessional Engineer, March 2001 – June 2002

- Led interface development effort, creating application interface designs as well as testing procedures to validate both functionality and adherence to client specified requirements.
- Provided component level documentation for the application to be used in functional requirement documentation.
- Designed and implemented a multi-threaded task management system.
- Co-designed and developed an interface for a content management tool, integrating a task management engine for remote task processing by the content management tool.
- Managed final bug-fix and deployment of SI Hub interface.

IBM Global Services, Business Enable Solutions, Somers, NY

Preprofessional Engineer, June 1998 – March 2001

- Oversaw the development of the web front-end for several iterations of a Java and Lotus Domino-based

web portal for tracking consulting engagements.

- Designed and developed both a web application interface and stand-alone application backend as a prototype for personalization of an information portal.
- Authored prototype technical specification.
- Designed and managed development of integration code to tie prototype functionality into existing application framework, successfully providing prototype proof of concept.
- Managed vendor hired to create an application interface, coordinating development to insure the interface was developed according to specifications set forth in the application user interface design document.
- Wrote the Portal User Interface Design Document, based on application architecture requirements for application functionality.
- Managed integration of the application interface, validating and verifying specifications defined in the Portal User Interface Design Document.
- Co-authored application functional specification.
- Led interface development meetings and presentations to management to gather requirements for interface development.
- Created a specification for design and development of standards compliant portal applications.

Research Activities

Funding as Principal or Co-Principal Investigator

1. Robert B. Daugherty Water for Food Institute. Phocalstream, 2012-2014. \$80,000, PI.
2. Digging into Data Competition, National Endowment for the Humanities, Office of Digital Humanities. Railroads and the Making of Modern America. 2009-2010. \$100,000, CO-PI.
3. Association of Information Referral Systems. Data Specification and Validation System. 2008-2009. \$16,000, PI.
4. Region V Services of Nebraska. Web Based Education System. 2008-2009. \$47,950, PI.
5. Red Cross, Coordinated Assistance Network. A Case Study of Data Sharing: 211 Helplink and the ARIS XSD. 2008. \$20,000, CO-PI.

Funding as Project Director or Advisor

1. National Institute of Justice. Evaluation of Location-based Services for Police. 2010-2013. \$50,000, Project Director.
2. Harvard University. Life on Earth. 2010-2013. \$188,204, Advisor.
3. US Department of Health and Human Services. ARRA: World of Viruses. 2009-2011. \$200,000, Project Director.
4. National Science Foundation (NSF 0743783). Semantic Cyberinfrastructure for Information and Discovery. 2009-2011. \$1,370,000, Project Director.
5. United States Department of Agriculture, Risk Management Agency. Drought Risk, Impact and Mitigation System (USDA-RMA 05-IE-0831-0254). 2005-2010. \$5,000,000, Project Director.
6. United States Department of Agriculture, Risk Management Agency. Climate and Soil Risk Information System (USDA-RMA 02-IE-0831-0028). 2005 – 2008. \$2,500,000, Project Director.

Publications

1. D.W. Keck, I.J. Cottingham. Intersection: fostering innovation in undergraduate education through thematic interdisciplinary programs. Open 2016.
2. I.J. Cottingham. A Service Oriented Architecture for Data-Driven Decision Support Systems. Masters Thesis, University of Nebraska – Lincoln, 2009.
3. I. J. Cottingham, B. B. Kutsch, N. C. Shank. A Case Study in Data Sharing: 211 Helplink and the AIRS XSD. 2008.
4. X. Wu, I.J. Cottingham. Using Web 2.0 and ESIR for Rich Climate Analysis. ESRI Users Conference. August 2008.
5. B. Prabhakar, I. J. Cottingham, S. Goddard. A Value Based Caching Framework for Data-Driven Distributed Systems. JBoss World. March 2005.

6. W. J. Waltman, S. Goddard, S. E. Reichenbach, G. Gu, I. J. Cottingham, J. S. Peake, T. Tadesse, S. K. Harms, J. S. Deogun. Digital government: reviving the newhall simulation model to understand the patterns and trends of soil climate regimes and drought events. dg.o '04: Proceedings of the 2004 annual national conference on Digital government research. May 2004.
7. I. J. Cottingham, S. Goddard, S. Zhang, X. Wu, K. Lu, A. Rutledge, W. J. Waltman. Demonstration of the National Agricultural Decision Support System. dg.o '04: Proceedings of the 2004 annual national conference on Digital government research. May 2004.
8. W. J. Waltman, S. Goddard, P. E. Read, S. E. Reichenbach, I. J. Cottingham, J. S. Peake. Digital Government: new tools to define terroirs and viticultural areas in the northern great plains. dg.o '04: Proceedings of the 2004 annual national conference on Digital government research. May 2004.

Presentations and Panels

1. Design Thinking for Strategic Innovation. Westside Community Schools, Develop U, 2015.
2. Data from Field to Global Scales. Water for Food Global Conference, 2014.
3. Phocalstream: Bringing the Power of Photography to the Cloud. Water for Food Global Conference, 2013.
4. So you need a CTO? Intersect, 2013.

Innovation and Technology Transfer

1. Developed RAIK 101 – Innovation Processes, an introductory course in the Raikes School designed to introduce innovation topics related to computer science and management to freshmen.
2. Developed student startup acceleration program in Design Studio based on Lean Launchpad methodology.
3. Collaborated with UNL Pathways to Innovation Team and Nebraska Innovation Campus Faculty Advisory Committee to co-develop an innovation curriculum and honors program to be taught at NIC.
4. Co-developed DSGN 110 with UNL College of Architecture faculty.
5. Co-developed and co-taught an interdisciplinary data analysis course for digital humanities with UNL History Department faculty.
6. Intellectual Property Disclosure and Technology License. Police Patrol Information System (NIJ). NUtech Agreement #1609A.
7. Intellectual Property Disclosure and Technology License. World of Viruses Comic Viewer (NIH). NUtech Agreement #1302A.

Community Available Work Products

1. Robert B. Daugherty Water for Food Institute. Phocalstream. <https://github.com/icotting/Phocalstream>.
2. National Endowment for the Humanities. The Aurora Project. <https://github.com/icotting/The-Aurora-Project>.
3. National Science Foundation. The Biofinity Project. <https://github.com/Biofinity/Biofinity>.
4. United States Department of Agriculture. The GreenLeaf Project. <https://github.com/icotting/The-GreenLeaf-Project>.
5. National Institutes of Health. World of Viruses:
 - a. Phantom Planet HD - <https://itunes.apple.com/us/app/phantom-planet-hd/id499674697?mt=8>.
 - b. The Never Ending Battle HD - <https://itunes.apple.com/us/app/the-neverending-battle-hd/id407968051?mt=8>.
 - c. The Frozen Horror HD - <https://itunes.apple.com/us/app/the-frozen-horror-hd/id423547214?mt=8>.
 - d. The Curse of the Treeman HD - <https://itunes.apple.com/us/app/the-curse-of-the-tree-man-hd/id466433079?mt=8>.
 - e. Confined HD - <https://itunes.apple.com/us/app/confined-hd/id499686747?mt=8>.
6. US Department of Health and Human Services. Virus Nightmare Adventure - <https://itunes.apple.com/us/app/virus-nightmare-adventure/id402235831?mt=8>.

Professional Activities and Service

- Member, Propelr Board of Advisors (2016)

- Member, UNL College of Law Entrepreneurship Clinic Advisory Board (2015 - Present).
- Participant, Nebraska Innovation Campus Faculty Advisory Committee (2015 – Present).
- Member, University of Nebraska – Lincoln Conflicts of Interest Review Committee (2015 - Present).
- Faculty Fellow, Robert B. Daugherty Water for Food Institute (2015 - Present).
- Co-Team Leader, Epicenter Pathways to Innovation Program (2015 – Present).
- Senior Technical Advisor to Together+Clinic, LLC, a Lincoln Nebraska-based healthcare startup (2014).
- Member, University of Nebraska – Lincoln Faculty Senate Subcommittee for Information Technology and Services (2013 – Present).
- UNL Representative, CIC Technology Collaboration Learning Technology Group (2014).
- Member, Faculty Advisory Panel to NUtech Ventures Entrepreneur in Residence Program (2012).

Teaching

- RAIK101H: Innovation Processes (2015).
- RAIK383H: Fundamentals of Software Engineering (2011, 2012, 2013, 2014, 2015, 2016).
- CSCE496: Data Analysis for Digital Humanities (2014).
- RAIK/CSCE402H: Design Studio IV, Software Performance and Optimization (2013, 2014, 2015, 2016).
- RAIK/CSCE401H: Design Studio III, Software Architecture (2012, 2013, 2014, 2015).
- CSCE361: Introduction to Software Engineering (2012).
- CSEC322: Programming Language Concepts (2012).
- DSGN110: Design Thinking (2013, 2014).

Mentoring and Advising

Graduate Students Mentored

1. Paul Bennett (MS, 2010).
2. Bhagyashree Prabhakar (MS, 2005).
3. Ahalya Nahtan (MS, 2005).

Undergraduate Students Mentored (Research, Innovation, and Entrepreneurship)

1. Zach Christensen (Startup, 2014).
2. James Verhoeff (Startup, 2014).
3. Derreck Stolee (Undergraduate Thesis, UCARE, 2005).
4. Jon Dokulil (Undergraduate Thesis (Design Studio), 2004).