

# Daniel McDonald, Ph.D.

## CURRICULUM VITAE

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### SUMMARY

Ten years of successful teaching in the area of Information Systems. Thirteen years researching topics related to Information Systems. Among other classes, has taught five different programming languages and three different relational database systems. Has industry experience in implementing business systems as well as professional software development.

### ACADEMIC POSITIONS

**Associate Professor**, Utah Valley University (Jul 2016 – Present)  
Information Systems & Technology Department.

**Assistant Professor**, Utah Valley University (Jul 2011 – Jun 2016)  
Information Systems & Technology Department.

**Assistant Professor (Lecturer)**, University of Utah (Jul 2007 – Aug 2011)  
Operations & Information Systems Department

**Research Associate and Instructor**, University of Utah (Aug 05 – Jun 06; Aug 06 – Dec 06)  
School of Accounting. Conducted research as part of the Global Knowledge Management Center (GKMC). Taught a Data Structures and Algorithms course.

**Research Associate and Instructor**, University of Arizona (Aug 01 – Aug 05)  
Management Information Systems Department. Conducted research as part of the Artificial Intelligence Lab. Taught a course in Operations Management.

### INDUSTRIAL EMPLOYMENT

**Systems Architect, Progrexion Tech. Solutions**, SLC, UT (Mar 2007 – Jul 2007)  
Wrote and designed programs in Enterprise Java using MySQL. Optimized performance of MySQL database and developed naming and coding standards.

**Accounting and Management at divisions of Woodgrain Millwork, Inc.** (Aug 1995 – July 1998)  
Closed monthly and yearly accounting books. Managed inventories. Implemented an Enterprise Resource Planning (ERP) system. Wrote reports to support sales and scheduling. Developed and implemented an order-entry-scheduling system on top of Access database.

### EDUCATION

**Ph.D.** in *Management with emphasis in Management Information Systems*. **2006**  
University of Arizona, Tucson, Arizona

**M.S.** in *Management Information Systems*. **2001**  
University of Arizona, Tucson, Arizona

**B.S. in Accounting. Summa cum laude. 1995**  
Brigham Young University, Provo, Utah

## **DISSERTATION**

Title: "Combining Text Structure and Meaning to Support Text Mining"  
Committee: Drs. Hsinchun Chen, Jay F. Nunamaker, and Mohan Tanniru

## **RESEARCH INTERESTS**

I am interested in researching how information systems can facilitate knowledge management and provide decision support. More specifically, I am interested in text mining to acquire actionable information from structured and unstructured data.

## **TEACHING EXPERIENCE**

### ***Utah Valley University (4.73/5.0 Student Ratings Average)***

INFO 1200 (4 Semesters): Computer Programming I for IS/IT  
INFO 2200 (7 Semesters): Computer Programming II for IS/IT  
INFO 2050 (1 Semester): Database Fundamentals  
INFO 3410 (9 Semesters): Database Systems and Data Warehousing  
INFO 3420 (2 Semesters): Web Systems Development  
INFO 3422 (1 Semesters): PHP Web Application Development  
INFO 3426 (1 Semesters): Web Content Management Systems  
INFO 4410 (4 Semester): Database Administration  
INFO 4420 (in progress): Mobile Business Application Development  
INFO 4440 (3 Semesters): Enterprise Computing

### ***University of Utah (5.55/6.0 Student Ratings Average)***

IS 6420 (1 Semester): Graduate Database Fundamentals (Oracle)  
IS 6480 (4 Semesters): Graduate Data Warehousing (Oracle)  
IS 6484 (1 Semester): Graduate Advanced Data Management (Oracle and MySQL)  
IS 4415 (10 Semesters): Undergraduate Data Structures & Java  
IS 4420 (7 Semesters): Undergraduate Database Fundamentals (Oracle)  
IS 4460 (4 Semesters): Undergraduate Web-based Applications (CSS, JavaScript and PHP)  
IS 4480 (4 Semesters): Undergraduate Data Warehousing (Oracle)

## **CURRICULUM and COURSE DEVELOPMENT**

### ***Utah Valley University***

1. **INFO 1200:** Computer Programming I for IS&T. This course was designed in C#. I adopted a book that used a GUI-first teaching approach. As part of the course, I created slides, developed thirteen assignments, and two exams.
2. **INFO 2200:** Computer Programming II for IS&T. This course was also designed in C#. This course finished the book from INFO 1200 and then covered miscellaneous programming topics. I created lectures, eight assignments, and two exams covering not only introductory programming but intermediate use of various APIs including IO, Client/Server, web services, HTTP connections, collection classes, and substantial database access.
3. **INFO 3410:** Database Systems and Data Warehousing. I designed this course to review

SQL from the first database course, introduce students to advanced database programming, and introduce students to data warehouse modeling. In this class, students wrote stored procedures, triggers, functions, cursors, and scripts. Students learned transaction management and completed a group project that involved creating a data warehouse from an existing flat file of close to 100,000 records.

4. **INFO 3420:** Web Systems Development. I designed this course to use Microsoft ASP.NET MVC 5. The book I selected not only taught server-side coding, but included substantial material on JavaScript libraries, such as jQuery, JavaScript frameworks, such as AngularJS, JavaScript coding, as well as unit testing.

5. **INFO 3422:** PHP Web Application Development. I designed this course to use primarily PHP, but also other emerging web technologies. We developed web applications using Bootstrap, PHP, and MariaDB. We also created web applications using WordPress, ReactJS, NodeJS, and MongoDB. Finally, we completed an assignment using Apache Cordova and jQuery Mobile.

6. **INFO 3426:** Web Content Management Systems.

7. **INFO 4410:** Database Administration. I developed this course to be as hands-on as possible. I designed the course to best prepare students to pass Microsoft certification exams. For this course, I designed 20 assignments that exposed students to a variety of features in SQL Server.

8. **INFO 4420:** Mobile Business Application Development. I am still in the process of creating this course. We are using Swift, the new programming language from Apple to create iPhone apps. We not only are reviewing the language, but are creating seven different apps that utilize a variety of the iPhone's capabilities.

9. **INFO 4440:** Enterprise Computing. I designed this course really in two sections. The first section was an ecommerce section. The second section was an in-depth exploration of the Enterprise Resource Planning (ERP) software SAP. SAP is the industry-leading vendor of ERP software. All of the assignments in this course were hands on. Students created ecommerce sites with listed products to sell. Students also set up a business in SAP, received inventory, paid invoices, manufactured goods, shipped the goods, invoiced customers, and processed customer payments.

### ***University of Utah***

1. **IS 4415:** Undergraduate Data Structures & Java. I originally created this class more as an abstract data structures and algorithms class. As I evolved the class, I transitioned it more into an introduction to programming course.

2. **IS 6420/4420:** Undergraduate Database Fundamentals. This class covered relational data modeling, including creating ERDs, translating the ERDs into tables, and writing the SQL to create the tables required. We also covered SQL thoroughly.

3. **IS 4460:** Undergraduate Web-based Applications. This course was originally taught in Java. I switched the course over to cover HTML, JavaScript, CSS, and PHP. I did not use a textbook, so I developed a substantial number of slides to present the material. Students created web sites that utilized a variety of PHP and JavaScript features.

4. **IS 6484:** Graduate-level Advanced Data Management. I created this class to include many of the new developments in data storage. I covered NoSQL database including simple key value stores, column data stores like Big Table, document databases, and graph databases. We created stored procedures in MySQL, SQL Server, and Oracle. I also creating clustering

assignments in MySQL for the class.

## PEER-REVIEWED JOURNAL PUBLICATIONS

1. "Using Raspberry Pi Computers to Teach LAMP and WordPress", DANIEL MCDONALD and S. Jeff Cold. 2017 *The Journal of Computing Sciences in Colleges*.
2. "Automatically Classifying PubMed Abstracts as Bench or Bedside", DANIEL MCDONALD and Michelle Ashton. 2017. *Issues in Information Systems Journal (IIS)*. Volume 18, Issue 1, pp. 22-30, 2017
3. "When Deceitful Chats Look Truthful", McDonald, D., Boyle, R., Anderson, J., 2016. *Journal of Computer Information Systems (JCIS)*. 56, 331-340.
4. "Using a Hybrid Data Model to Manage Signaling Data" McDonald, D., McKay, J., Thompson, L., Doyle, T. 2015 *Journal of Computing Sciences in Colleges (JCSC)*. 31, 41-47.
5. "The Current State of Business Intelligence and Analytics in Utah", Anderson, J., Daniels, J., McDonald, D., Edvalson, R., *Issues in Information Systems Journal (IIS)*, Volume 15, Issue 2. October 2014
6. "A Text Mining Analysis of Religious Texts" Daniel McDonald. *Journal of Business Inquiry*. 2014 Utah Valley University, Orem, UT.
7. "Genetic programming for prevention of cyberterrorism through dynamic and evolving intrusion detection" James V. Hansen, Paul B. Lowry, Rayman D. Meservy, Daniel McDonald. *Decision Support Systems (DSS)*, Volume 43, Issue 4 (August 2007).
8. "Aggregating automatically extracted regulatory pathway relations" Marshall, B; Hua Su, Daniel McDonald, Eggers, S; and Chen, H. *IEEE Transactions on Information Technology in Biomedicine*, 10:1 2006, pgs. 100-108.
9. "Summary in context: searching versus browsing". McDonald, D., Chen, H. *ACM Transactions on Information Systems (ACM TOIS)* 24:1 2006.
10. "EBizPort: collecting and analyzing business intelligence information" Marshall, B., McDonald, D., Chen, H., Chung, W. *Journal of the American Society for Information Science and Technology (JASIST)*, 55 (10): 873-891 (2004) Special Issue on Document Search Interface Design for Large-scale Collections and Intelligent Access.
11. "Extracting gene pathway relations using a hybrid grammar: The Arizona Relation Parser". McDonald, D., Chen, H., Su, H., Marshall, B. *Bioinformatics* 20: 3370-8 (2004).

## PEER-REVIEWED CONFERENCE PUBLICATIONS

1. "Using an SOM to Visualize Deceptive Chat Content", McDonald, D., Boyle, R., Anderson, J., Proceedings of the IACIS Conference, Las Vegas, NV October 1-4, 2014
2. "Using Hybrid Lexical Profiles to Find and Name Entities" Daniel McDonald, Hsinchun Chen, Olivia Sheng. Southwest Decision Sciences Institute (SWDSI) Conference. March 2014, Dallas, TX. (Distinguished paper award)
3. "Transforming open-source documents to terror networks: the Arizona TerrorNet" Daniel McDonald, Hsinchun Chen, and Rob Schumaker. AAAI Spring Symposium on Homeland Security. March 2005, Stanford University.
4. "Linking ontological resources using aggregatable substance identifiers to organize extracted relations", B. Marshall, H. Su, D. MCDONALD, H. Chen. Pacific Symposium on Biocomputing (PSB) 2005 Kona, Hawaii.
5. "Genescene: biomedical text and data mining" G. Leroy H. Chen, J. D. Martinez, S. Eggers, R. R.

- Falsey, K. L. Kislin, Z. Huang, J. Li, J. Xu, D.M. McDonald, and G. Ng, JCDL, May **2003** Houston, TX.
6. "Using sentence-selection heuristics to rank text segments in TXTRACTOR" McDonald, D. and Chen, H., JCDL, July **2002** Portland, OR.
  7. "Comparison of two approaches to building a vertical search tool: A case study in the nanotechnology domain" Chau, M., Chen, H., Qin, J., Zhou, Y., Qin, Y., Sung, W., MCDONALD, D. JCDL, July **2002**, Portland, OR.

## BOOK CHAPTER(S)

D. M. MCDONALD, H. Su, J. Xu, C.-J. Tseng, H. Chen, & G. Leroy, "Gene Pathway Text Mining and Visualization," in Chen, Fuller, Friedman, & Hersh (Eds.) Medical Informatics: Advances in Knowledge Management and Data Mining in Biomedicine, July 2005.

## PRESENTATIONS NOT IN PROCEEDINGS

1. "Preliminary Results of a Text Mining Analysis of Religious Texts" Daniel McDonald. Religious Faith and Social and Applied Sciences Conference. October 2013. Utah Valley University, Orem, UT.
2. "Preliminary Results on Using Hybrid Lexical Profiles to Find and Name Entities" D.M. McDonald, Hsinchun Chen, Olivia Sheng. Utah Winter Business Intelligence Conference. 2006
3. "Extracting and Visualizing Gene Pathway Networks from Biomedical Texts". D.M. McDonald, H. Su, H. Chen, C.-L Tseng. Pacific Symposium on Biocomputing (PSB). Jan 2004, Kona, Hawaii.
4. "Combining Extracted Gene Relations With Ontologies To Create Meaningful Pathway Maps". D.M. McDonald, H. Su, B. Marshall, H. Chen, C.-L. Tseng. BISTI Symposium, NIH "Digital Biology: The Emerging Paradigm". Nov. 2003, Bethesda, Maryland.
5. "NanoPort: A Web Portal for Nanoscale Science and Technology". Chau, M., Chen, H., Qin, J., Zhou, Y., Sung, W., Chen, Y., Qin, Y., McDonald, D., Lally, A., and Landon, M. JCDL Jul 2002, Portland, OR.

## WORKING PAPER(S)

Spring 2001 Master's Thesis, "Knowledge Sharing Applications to Facilitate Mesoamerican Research"

## AWARDS & HONORS

*Distinguished Paper Award*, Decision Sciences Institute, Southwest Region. 2014  
*Marvin J. Ashton Teaching Excellence Award*, 2009-10. School of Business. University of Utah.  
*A Most Influential Teacher*, OIS Department. University of Utah; Awarded 04/24/2010.  
*Eller School of Management Tuition Fellowship*, University of Arizona (2001-2005)  
*Research associate appointment*, University of Arizona (2001-2005)  
*Suma cum laude Graduation*, Brigham Young University (1995)  
*Karl G. Maeser Scholar*, Brigham Young University (1994-95)  
*University Scholar*, Brigham Young University (1989-90; 1992-94)

## PROFESSIONAL AFFILIATIONS

2011-12; 2015-16 Consortium for Computing Sciences in Colleges (CCSC)

2014-15 International Association for Computer Information Systems (IACIS)  
2014-15 Southwest Decision Sciences Institute (SWDSI)  
2004-07; 2010-11 Association for Information Systems (AIS) Member  
2005-06 Association for the Advancement of Artificial Intelligence (AAAI)  
2000-07 IEEE Member  
2001-07; 2013-current ACM Member

## **COMMITTEE, ADMINISTRATIVE, and RELATED ASSIGNMENTS**

Curriculum Committee, College of Technology & Computing, UVU (2015-current)  
Faculty Senator, Department of Information Systems & Technology, UVU (2011-2014)  
Chair, University Academic Standards Committee, UVU (2012-2014)  
Scholarly and Creative Activities Council, UVU (2012-2013)

## **SKILLS/INTERESTS**

Spanish Speaking  
Java, JavaScript, Perl, Python, C, C#, PHP, Swift, and Objective C  
Linux, Windows, Solaris, and Mac  
Ran L.A. and Huntsville marathons (26.2 miles)  
Finished LoToJa, a 208 mile one-day cycling event

## **REFERENCES:**

### **Dr. Olivia Sheng**

Presidential Professor, Emma Eccles Chair, Department of Operations and Information Systems  
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University of Utah  
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### **Dr. Pau Hu**

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