

# Debra Lee Davis

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## SUMMARY OF QUALIFICATIONS

- Senior Executive with over 16 years of diverse expertise in research, education and technology
- Student-oriented mentor with an interactive, hands-on approach; works with students to enhance their strengths and overcome their weaknesses, helping them excel in their studies and careers
- Strong Project Management skills in both Behavioral Science and IT fields
- Articulate speaker and author with proven communication skills; able to communicate technical information to non-technical individuals and audiences
- Strong Experimental Design & Research Methodology, Grantsmanship, and Advanced Statistical Analysis Expertise

## EDUCATION

**Ph.D., Cognitive Developmental Psychology**, minor: **Statistics**, University of Texas at Austin, 2004

**M.S., Computer Science**, Florida International University (FIU), 2000

**M.A., Developmental Psychology**, minor: **Statistics**, University of Texas at Austin, 1996

**B.A. with Academic and Research Honors, Psychology**, minor: **Computer Science**, FIU, 1993

## RESEARCH AND RELATED EXPERIENCE

FLORIDA INTERNATIONAL UNIVERSITY (FIU) (Feb. 2010 – Present)

NSF INDUSTRY-UNIVERSITY COOPERATIVE RESEARCH CENTER AT FIU AND FAU

SCHOOL OF COMPUTER AND INFORMATION SCIENCES

**Faculty Associate** (Dec. 2010 – Present)

*Scope:* Grantsmanship and research initiatives including grant proposal writing for large-scale NSF grant initiatives and other Federal grant opportunities, internal and external grant proposal and professional publication review and analysis; write book chapters, articles and other professional publications

- Wrote and procured a \$600,000 collaborative NSF MRI technology grant for SCS faculty
- Wrote and co-authored 2 collaborative book chapters on data intensive computing
- Commended by NSF for an external NSF STEM grant proposal review

DEPARTMENT OF PSYCHOLOGY, FIU

**Adjunct Faculty Member** (Jun. 2010 - Present)

**Research & Technical Consultant**, CHILD ANXIETY AND PHOBIA PROGRAM (CAPP) (2010)

*Scope:* Analyze, design and implement processes and strategies to improve effectiveness of CAPP research and outreach goals: (1) Analyze, design and implement participant recruitment, enrollment and retention strategies for research and clinical trials, (2) Serve as an internal and external liaison to improve outreach efforts, and (3) Provide analysis and design recommendations for technology improvements (online assessment capabilities, website redesign and internal collaboration).

- Tripled participant recruitment & doubled participant enrollment during traditionally slowest months

THE CHILDREN'S TRUST

**Chief Information Officer** (Feb. 2006 – Aug. 2009)

**Senior Research & Evaluation Analyst**

*Scope:* Provided the vision, leadership, strategic planning and management of the Information Systems Department. Ensured the alignment of information systems and data-driven initiatives with enterprise

objectives and goals, including leading the analysis, design and implementation of data systems and strategies, implementing best practices, providing improved data integrity & security, defining appropriate evaluation metrics, and providing domain expertise and evaluation of research projects and grant proposals. As Sr. Research and Evaluation Analyst, focused on managing the development and execution of all phases of research and evaluation projects.

*Main Accomplishments:*

- Regularly lead complex organization-level and cross-departmental projects that often involved dealing with conflicting and changing priorities, limited resources and severe time constraints
- Regularly engaged in RFP creation, grant proposal reviews, and program funding recommendations
- Redefined and refocused the organization's IS governance to a user-centric approach, with a strong focus on data and research evaluation requirements
- Provided improved integrity and validity of key research data via the use of best practices in both Research and Information Technology, including refocusing questions of interest, and the design and implementation of more advanced data structures and software applications
- Supervised and coordinated a team of up to 15 employees and contractors on departmental and organization-wide initiatives
- Managed a departmental budget of up to \$1.25 Million.
- Saved the organization over \$350,000 in the implementation of an enterprise contract management system via influential negotiation, strong project management skills, best practices, and appropriate use of current and emerging technologies

MIAMI-DADE COUNTY PUBLIC SCHOOLS, ADULT EDUCATION/REGIONAL OPERATIONS

**Education Specialist, Part-time** (March 2005 – June 2007)

*Scope:* Grantsmanship including grant writing, research initiatives, and grant deliverables. Analyzed and implemented program evaluation plans and research studies; Conducted statistical data analyses; Designed & implemented database structures, queries, views, forms and reports for research related initiatives.

DEPARTMENT OF PSYCHOLOGY, UNIVERSITY OF TEXAS AT AUSTIN

**Research Lab Coordinator and Research Assistant** (1993-1997, 2001-2004)

*Scope:* Initiate, design and conduct research in Cognitive Developmental Psychology, with a focus on Theory of Mind. This involves the entire life-cycle of the scientific research process including formulating ideas for topics of research, investigating and integrating previous research findings with underlying psychological issues of interest, designing and implementing research methodology, performing statistical data analyses, interpreting research results, and communicating study findings to professional and nonprofessional audiences in both oral and written forms.

*Main Accomplishments:*

- *Dissertation Focus:* (1) Understanding which attributes children and adults most strongly associate with having a mind and a brain, and (2) Understanding of intelligent artifacts (computers/robots) and their relation to the mind
- Executed a broad-based, multi-disciplinary literature review that provided a unified perspective of people's common beliefs about the mind. This work coalesced research not only from diverse areas of Psychology, but also from other disciplines including Cognitive Science, Human-Computer Interaction, Artificial Intelligence, Education, and Media and Communications
- Designed and implemented a multifaceted research methodology capable of being administered to a wide range of ages (5-year-olds to adults), allowing direct statistical comparisons of responses between even young children and adults
- Utilized complex statistical analyses, including Hierarchical Linear Modeling for Repeated Measures Categorical Data, to allow for more detailed and in-depth analysis of study data
- Supervised and coordinated undergraduate research assistants

NASA REGIONAL APPLICATIONS CENTER

HIGH PERFORMANCE DATABASE RESEARCH CENTER, FLORIDA INTERNATIONAL UNIVERSITY (FIU)

**Applications Manager** (2000-2001)

*Scope:* As part of a management team, shaped the long-term vision of TerraFly (the Center's flagship project) and the RAC. This included investigating strategic marketing directions, recommending additional growth opportunities, and acting as a representative of the Center with partners and outside agencies.

*Main Accomplishments:*

- Analyzed long-term vision and goals of TerraFly to establish classes of projects suitable for research and implementation
- Designed and developed TerraFly's large scale semantic database to house terabytes of various types of spatial data in one database
- Created an algorithm to more quickly and efficiently retrieve large amounts of spatial data from TerraFly's semantic database
- Researched and analyzed user experience requirements, and provided system and user interface design strategies and improvements for current and future research project implementations
- Managed and coordinated functional requirements and work load between management, technical team leaders and programmers, facilitating cooperation between diverse project teams

**Project Manager, TerraFly** (1998-2000)

*Scope:* Promoted to Project Manager for the center's flagship project: Supervised the production of TerraFly, an interactive vehicle for 'flying' over remote sensed and associated data. The project began as a standalone application and evolved into a Web-based system.

*Main Accomplishments:*

- Analyzed, planned and directed short- to mid-term feasibility and implementation goals as well as contributed to TerraFly's long-term vision
- Conducted detailed research and analysis of spatial data for integration into the TerraFly system
- Evaluated research projects and provided feedback to the Center's Director for final evaluation
- Directed a diverse team of researchers and software engineers using C++, Java, JavaScript, CGI and HTML to develop the TerraFly application and related software tools
- Defined functional requirements and created use cases, class diagrams and documentation for the restructuring of TerraFly from a standalone to Web-enabled application
- Created and delivered oral and written technical presentations to both technical and non-technical audiences using a clear and cohesive style

**Research Associate/Software Engineer** (1997-1998)

- Created a 3D graphical application of remotely sensed (Geographic Information Systems) data, as well as multimedia and Web-based interfaces in a team-oriented environment
- Edited technical research manuscripts and database documentation
- Analyzed database schemas and algorithms for research-based applications

## TEACHING EXPERIENCE

**Adjunct/Instructor** (1996-1997, Jun. 2010 - Present)

DEPARTMENT OF PSYCHOLOGY, FLORIDA INTERNATIONAL UNIVERSITY (FIU) (June 2010 – Present)

- Social & Personality Development
- Psychology of Health and Illness
- Introduction to Psychology
- Human Growth & Development (*Spring 2011*)

SCHOOL OF COMPUTER AND INFORMATION SCIENCES, FIU (Dec. 2011 – Present)

- Human Computer Interaction
- Advanced Topics in Information Processing

DEPARTMENT OF PSYCHOLOGY, UNIVERSITY OF TEXAS AT AUSTIN (1996-1997)

- Developmental Psychology
- Statistics and Research Design Lab

**Guest Lecturer** (2007) Introduction to Psychology, Miami-Dade College

### **Teaching Assistant**

DEPARTMENT OF PSYCHOLOGY, UNIVERSITY OF TEXAS AT AUSTIN (1993-97, 2001-2003)

- Statistics and Research Design
- Cognitive Development
- Developmental Psychology

SCHOOL OF COMPUTER SCIENCE, FLORIDA INTERNATIONAL UNIVERSITY (1998)

- Advanced Database Design

## **RELATED COMMUNITY SERVICE AND CONSULTING**

- Program Evaluator, Read 2 Succeed 21<sup>st</sup> Century Grant (2010)
- Principle Investigator for the All Stars Effectiveness Education Research Project, McGraw-Hill, Education Division (2007-2008)
- Invited to be a Board Member on the Collins Center of Public Policy's Community Technology Advisory Board (2008)
- Served as a Grant Proposal Reviewer for the Early Learning Coalition (2006, 2008)
- Served as a blind Program Evaluator for multiple government and non-profit organizations such as the City of Miami, City of South Miami, the Columbian American Service Association (CASA) and the Coalition of Florida Farmworker Organizations (COFFO) (2005-2009)

## **TECHNICAL QUALIFICATIONS**

- **Statistical Packages:** SPSS, HLM (Hierarchical Linear and Nonlinear Modeling by SSI Scientific Software), StatView, SuperAnova, Amos, and SAS
- **Statistical Analyses:** Analysis of Variance (ANOVA), Simple and Multiple Regression, Factor Analysis, Cluster Analysis, Hierarchical Linear and Nonlinear Modeling, Structural Equation Modeling, MANOVA, all basic analyses (Descriptive Stats, T-test, Chi square, Correlation, etc.)
- **Programming Languages:** SQL, C++, C, Java, Javascript, UML, HTML, PHP, Prolog, Pearl
- **Languages:** English (native), Spanish (fluent)

## **HONORS AND AWARDS**

- Nomination to Phi Kappa Phi National Honor Society, University of Texas at Austin (1994, 1996, 2004).
- Debra Beth Lobliner Research Grant, Department of Psychology, University to Texas at Austin (1995).
- B.A. in Psychology/minor: Computer Science (1993). Graduated with Academic and Research Honors.
- Nomination to Phi Kappa Phi National Honor Society, Florida International University (1993).
- Deans List (1992 - 1993).

## **MOST RECENT PUBLICATIONS**

Clarke, P., Pava, J., Davis, D., King, T., and Hernandez, F. (Submitted). Using WRSTT in SE Courses: An Empirical Study. *Submitted to the 2012 Conference of the ACM Special Interest Group on Computer Science Education (SIGCSE).*

Rishe, N., Furht, B., Adjouadi, M., Baretto, A., Davis, D., Wolfson, O., Yesha, Y., & Yesha, Y. (In Press). Semantic Wrapper: Concise Semantic Querying of Legacy Relational Databases. In B. Furht & A. Escalante (Eds), *Handbook of Data Intensive Computing*. New York: Springer.

Rishe, N., Furht, B., Adjouadi, M., Baretto, A., Cheremisina, E., Davis, D., Wolfson, O., Adam, N., Yesha, Y., & Yesha, Y. (In Press). Geospatial Data Management with TerraFly. In B. Furht & A. Escalante (Eds), *Handbook of Data Intensive Computing*. New York: Springer.

Davis, D.L., (2008). All Star Curriculum Effectiveness Study Executive Summary. *Manuscript provided to and published by MacGraw-Hill Education Division*

## **ADDITIONAL PUBLICATIONS AND PRESENTATIONS: PSYCHOLOGY**

### **Refereed Journal Publications**

Davis, D.L., Woolley, J.D., & Bruell, M. (2002). Young children's understanding of the roles of knowledge and thinking in pretense. *British Journal of Developmental Psychology*, Vol. 20(1).

Woolley, J.D., Phelps, K.E., Davis, D.L., & Mandell, D.J. (1999). Where theories of mind meet magic: The development of children's beliefs about wishing. *Child Development*. Vol 70(3), 571-587.

### **Refereed Conference Presentations**

Davis, D.L. (2003). Development in children's understanding of what it means to have a mind. *Presentation at the 2003 biennial meeting of the Society for Research in Child Development* in Washington, Tampa, Florida.

Davis, D.L. (1997). Children's understanding of the role of knowledge and thinking in pretense. *Presentation at the 1997 biennial meeting of the Society for Research in Child Development* in Washington, DC.

Davis, D.L., Woolley, J.D., & Bruell, M. (1996). Young children's understanding of the mentalistic nature of pretense. *Presentation at the 1996 annual meeting of The American Psychological Society* in San Francisco, California.

Davis, D.L. (1995). Young children's understanding of pretense as a mental representation. *Presentation at the 1995 biennial meeting of the Society for Research on Child Development* in Indianapolis, Indiana.

Bruell, M., Davis, D.L., & Thomas, J.F. (1995). Young children's understanding of representational diversity in pretense. *Presentation at the 1995 biennial meeting of the Society for Research on Child Development* in Indianapolis, Indiana.

Davis, D.L., Berman, A., Berman, S., Wanderman, J., Briones, E., & Kurtines, W.M. (1993). The Development of a Measure of the Use of Critical Thinking and Discussion in Moral Dilemmas. *Paper presentation. Association of Moral Education Conference* in Tallahassee, Florida.

Williamson, S., Berman, S., Davis, D.L., & Kurtines, W.M. (1992). The Development of a Measure of Critical Thinking. *Paper Presentation. Association of Moral Education Conference* in Toronto, Ontario, Canada.

## **Manuscripts**

Davis, D.L. (2003) Everyday ascriptions of the mind: What is the mind, who has one and how do we know that? *Unpublished Manuscript*

## **ADDITIONAL PUBLICATIONS AND PRESENTATIONS: COMPUTER SCIENCE**

### **Refereed Conference Publications**

Rishe, N., Chen, S.-C., Prabakar, N., Weiss, M.A., Sun, W., Selivonenko, A., & Davis-Chu, D.L. (2001). TerraFly: A High-Performance Web-Based Digital Library System for Spatial Data Access. *Proceedings of the 2001 International Conference on Data Engineering*, pp. 17-19, Heidelberg, Germany.

Davis-Chu, D.L., Prabakar, N., Rishe, N., & Selivonenko, A.. (2000). A System for Continuous, Real-Time Search and Retrieval of Georeferenced Objects. *Proceedings of the 2nd International Conference on Information Reuse and Integration*, pp. 82-85, Honolulu, Hawaii.

Selivonenko, A., Prabakar, N., Rishe, N., & Davis-Chu, D.L. (2000). Dynamic Mosaicking of Heterogeneous Digital Images. *Proceedings of the 2nd International Conference on Information Reuse and Integration*, pp. 86-90, Honolulu, Hawaii.

Davis-Chu, D.L., Prabakar, N., & Rishe, N. (2000). Client-Server Based Real-Time Integration Of Remotely Sensed And Digital Data. *Proceedings of the 1999 Int'l Conference on Imaging Science, Systems and Technology*, pp. 499-505, Las Vegas, Nevada.

Davis-Chu, D.L., Alvarez, E., & Rishe, N. (1999). The Creation of a System for 3D Satellite and Terrain Imagery. *Proceedings of the 13<sup>th</sup> International Conference in Applied Geologic Remote Sensing*, Vol II, pp. 329-336. Vancouver, British Columbia, Canada.

Davis, D.L. (1998). Creation of 3D Satellite Imagery. *Proceedings of the Workshop on Next Generation Database Design and Applications*, p. 48, Miami, FL.

### **Refereed Conference Presentations**

Rishe, N., Gutierrez, M., Gonzales, A., & Davis, D.L.. (1999). An Efficient Storage, Analysis, and Retrieval System for SeaWiFS Data using SeaDAS, Sem-ODB technology, and the World Wide Web. *Presentation at the 1999 meeting of ISSSR "Systems and Sensors for the New Millennium"*, October 31, - November 4, 1999, Las Vegas, Nevada.

### **Internal Technical Manuscripts**

Davis-Chu, D.L., Prabakar, N., Rishe, N. & Selivonenko, A. (2001). Fast and Efficient Retrieval of Spatial Objects Using Semantic Object-Oriented Database Technology. Internal technical report. NASA Regional Applications Center, High Performance Database Research Center at Florida International University.

Ho, T., Davis-Chu, D.L., Gutierrez, M., Martinez, M., & Rishe, N. (1999). Cluster Implementation of a Multi-user, Real-time Spatial Data Viewer Using 'TerraFly' and a Parallel Semantic Database. Internal technical report. NASA Regional Applications Center, High Performance Database Research Center at Florida International University.

## **OTHER RELATED PUBLICATIONS**

Contributing Author to:

- The Children's Trust Annual Report (2006-2008)
- Annual Report to The Children's Trust Board of Directors (2006-2009)
- The Children's Trust Budget Message (2006-2009)
- The Children's Trust Budget Briefing Papers (2006-2009)
- The Children's Trust Annual Report to the Board of the County Commissioners (2006-2008)
- The Children's Trust Community Report Card (2006)