

## LEONARD LEANDER BROWN III

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### EDUCATION

- Ph.D. in Computer Science, Summer 2003  
The University of Oklahoma, Norman
- M.S. in Computer Science, Spring 1997  
The University of Oklahoma, Norman
- B.S. in Computer Science, with Special Distinction, Spring 1993  
The University of Oklahoma, Norman

### EXPERIENCE

- The University of Texas at Tyler, Department of Computer Science, December 2003 – present
  - Interim Chair, Department of Computer Science (with tenure), April 2014 – June 2015
  - Associate Professor of Computer Science, September 2010 – present
  - Assistant Professor of Computer Science, December 2003 – 2010

#### *Courses Taught:*

COSC 5393 – Graduate Seminar  
COSC 5376 – Fundamentals of Data Warehouses  
COSC 5375 – Advanced Database Design  
COSC 5360 – Database Design  
COSC 5345 – Computer Graphics  
COSC 5326 – UNIX Programming Environment  
COSC 4399 – Independent Study / Capstone Project  
COSC 4385 – Database Management Concepts  
COSC 4373 – Advanced Database Management Concepts  
COSC 4360 – Net-Centric Computing  
COSC 4345 – Computer Graphics  
COSC 4336 – Software Development  
COSC 4327 – UNIX Shell Programming  
COSC 4315 – Information and Knowledge Management  
COSC 4309 – Modern Information Systems  
COSC 3365 – Programming with Data, File, and Object Structures  
COSC 3315 – Social and Professional Issues in Computing  
COSC 2336 – Data Structures and Algorithms  
COSC 1337/1137 – Object-Oriented Paradigm/Object-Oriented Paradigm Laboratory  
COSC 1336/1136 – Programming Fundamentals/Programming Fundamentals Laboratory

- NASA's Jet Propulsion Laboratory (JPL), NASA Faculty Fellow, May 2004 – August 2004  
Designed an information system architecture for the Systems Management Office (SMO) Organization within JPL. Researched techniques for combining information from several existing databases and file systems. Implemented prototype demonstrating design of proposed information system for the SMO.

- The University of Oklahoma, School of Computer Science, Graduate Assistant
  - Research Assistant, January 2003 – February 2003
 

Developed a web-enabled database application for the management of terrorism data collected from various sources funded by the Oklahoma City Memorial Institute for the Prevention of Terrorism (MIPT). Researched and developed new techniques for performing text and image retrieval of terrorism data.
  - Research Assistant, July 2000 – December 2000
 

Researched the techniques used currently at NASA for performing content-based image retrieval. Developed a proposal for using editing operations to perform content-based image retrieval in selected NASA applications. Guided the research for a student participating in the NSF Research Experience for Undergraduates program.
  - Research Assistant, August 1999 – December 1999
 

Developed a relational database management system for the Regional AIDS Interfaith Network of Oklahoma (RAIN-Oklahoma). Worked with users to specify system requirements. Designed and implemented the system. Developed a user's manual for the system. Provided training for the users.
  - Teaching Assistant, CS1323 – Introduction to Computer Programming, Summer 2003 and 2001
 

Course Instructor. Lectured 6 hours per week. Developed course materials for entire class, which included exams, quizzes, and homework assignments written in Java. Directed another graduate teaching assistant in summer 2001.
  - Teaching Assistant, CS2334 – Programming Structures and Abstractions, Fall 2002, Spring 2002, and Fall 2001
 

Lab instructor for three weekly lab sections. Prepared lab lectures. Graded program designs written in Unified Modeling Language (UML). Graded programming assignments in Java and group exercises.
  - Teaching Assistant, CS1323 – Introduction to Computer Programming, Summer 2002 and Spring 2001
 

Lab Instructor for weekly lab sections. Graded the students' written homework assignments and programs written in Java.
  - Teaching Assistant, CS1314 – Fundamentals of Computer Programming, Spring 1996
 

Lab Instructor for two weekly lab sections. Developed and graded quizzes and programming assignments written in Fortran-90 and C. Graded exams.
- Lucent Technologies, Intern, Summer 1999, 1998, 1997, and 1996
 

Developed, and implemented web-based application software for the Quality and Human Resources organizations. Worked with users to specify system requirements. Implemented application software using Perl and JavaScript languages.
- AT&T, Member of Technical Staff-1, May 1993 – January 1996
 

Developed application software and provided computer systems support for the Safety, Security, and Personnel organizations. Served as group leader for the Human Resources support group. Implemented application software using an Oracle database with interfaces in MS Access.

- Phillips Petroleum Company, Intern, June 1991 – August 1991  
Developed a set of applications and subroutines for the research and development center.

## **PUBLICATIONS**

### *JOURNALS (PEER-REVIEWED)*

- Wei Fan, Randy Machemehl, Mason Gemar, and Leonard Brown, “A *Stochastic Dynamic Programming Approach for the Equipment Replacement Optimization under Uncertainty*”, Journal of Transportation Systems Engineering and Information Technology, Volume 14, Issue 3, June 2014, pp. 76-84.
- Carol Kilmon, Leonard Brown, et al., “*Immersive Virtual Reality Simulations in Nursing Education*”, Nursing Education Perspectives, Volume 35, Number 5, September/October 2010, pp. 314-317.
- Leonard Brown and Le Gruenwald, “*Using Editing Operations to Improve Searching by Color in Multimedia Database Systems*”, International Journal of Imaging Systems and Technology (IJIST), Volume 18, Issue 2-3, 2008, pp. 182-194.
- Le Gruenwald, Leonard Brown, et al., “*Database Research at the University of Oklahoma*”, ACM SIGMOD Record, Volume 28, Number 3, September 1999, pp. 73-78.
- Leonard Brown and Le Gruenwald, “*Tree-Based Indexes for Image Data*”, Journal of Visual Communication and Image Representation (JVCIR), Volume 9, Number 4, December 1998, pp. 300-313.

### *BOOK CHAPTERS (PEER-REVIEWED)*

- Arun Kulkarni and Leonard Brown, “*Association-Based Image Retrieval*”, in Semantic Mining Technologies for Multimedia Databases (Edited by D. Tao, D. Xu, and X. Li), IGI Global, 2009, pp. 379-406.

### *CONFERENCE PROCEEDINGS (PEER-REVIEWED)*

- Wei Fan, Randy Machemehl, Mason Gemar, and Leonard Brown, “*A Stochastic Dynamic Programming Approach for the Equipment Replacement Optimization with Probabilistic Vehicle Utilization*”, 91<sup>st</sup> Annual Meeting of the Transportation Research Board (TRB), Washington DC, January 2012.
- Leonard Brown, Sean Dodd et al., “*The Virtual Emergency Crash Cart: An Immersive Virtual Reality Learning Experience for Nurses*”, Emerging Technologies in Nurse Education, Seattle, Washington, July 2008, p. 107.
- Leonard Brown and Le Gruenwald, “*Speeding up Color-Based Retrieval in Multimedia Database Management Systems that Store Images as Sequences of Editing Operations*”, Proceedings of the First IEEE International Workshop on Multimedia Databases and Data Management (MDDM), Atlanta, Georgia, April 2006, CD-ROM (10 pages).
- Fredericka Brown and Leonard Brown, “*Improving the Clinical Applicability of a Non-Invasive Perfusion Determination Technique*”, Proceedings of the International Conference on Data Management for Real-Life Problems in Biomedicine (DMRB), San Diego, California, June 2005, pp. 106-110.
- Padmaja Dukkipati and Leonard Brown, “*Improving the Recognition of Geometrical Shapes in Road Signs by Augmenting the Database*”, Proceedings of the 3<sup>rd</sup> International Conference on Computer Science and its Applications (ICCSA), San Diego, California, June 2005, pp. 8-13.
- Leonard Brown, “*Issues in Augmenting Image Databases to Improve Processing Content-Based Similarity Searches*”, Proceedings of the 20<sup>th</sup> Annual ACM Symposium on Applied Computing (SAC), Santa Fe, New Mexico, March 2005, pp. 1254-1255.

- Leonard Brown and Le Gruenwald, “*Performing Color-Based Similarity Searches in Multimedia Database Management Systems Augmented with Derived Images*”, Proceedings of the 21<sup>st</sup> British National Conference on Databases (BNCOD), Edinburgh, Scotland, Lecture Notes in Computer Science 3112 – Key Technologies for Data Management, July 2004, pp. 178-189.
- Leonard Brown and Le Gruenwald, “*A Prototype Content-Based Retrieval System that Uses Virtual Images to Save Space*”, Proceedings of the 27<sup>th</sup> International Conference on Very Large Databases (VLDB), Rome, Italy, September 2001, pp. 693-694.
- Leonard Brown, Le Gruenwald, and Greg Speegle, “*Issues in Using Specifications to Improve Content-Based Search of Multimedia Data*”, Proceedings of the 1999 International Symposium on Database Applications in Non-Traditional Environments (DANTE), Kyoto, Japan, November 1999, pp. 195-202.
- Leonard Brown, Le Gruenwald, and Greg Speegle, “*Issues in Using Knowledge to Perform Similarity Searching in Multimedia Databases Without Redundant Data Objects*”, Proceedings of 1<sup>st</sup> International Workshop on Multimedia Intelligent Storage and Retrieval Management (MISRM), Orlando, Florida, October 1999.
- Leonard Brown and Le Gruenwald, “*Determining a Minimal and Independent Set of Image Processing Operations for a Multimedia Database System*”, Proceedings of the 1998 Energy Technology Conference and Exhibition (ETCE), Houston, Texas, February 1998, CD-ROM (6 pages).
- Leonard Brown, Le Gruenwald, and Greg Speegle, “*Testing a Set of Image Processing Operations for Completeness*”, Proceedings of the 2<sup>nd</sup> International Conference on Multimedia Information Systems (ICMIS), Chicago, Illinois, April 1997, pp. 127-134.

## GRANTS

- Leonard Brown, “*Converting the PACE Automated Reporting System into a Multi-User Environment in order to Facilitate Distribution and State-Wide User Access*”, Center for Research, Evaluation and Advancement of Teacher Education (CREATE), University of Houston, 2013-2014, \$20,000, PI.
- Leonard Brown, “*A Layered Architecture for Implementing New Types of Data Analyses for the PACE Automated Reporting System*”, Center for Research, Evaluation and Advancement of Teacher Education (CREATE), University of Houston, 2011-2012, \$20,000, PI.
- Leonard Brown, “*The Design and Implementation of Data Warehousing Capabilities on a PC-Based Automated Reporting System*”, Center for Research, Evaluation and Advancement of Teacher Education (CREATE), University of Houston, 2009-2010, \$20,000, PI.
- Wei Fan, Leonard Brown, Randy Machemehl, and Ron Matthews, “*Equipment Replacement Optimization*”, Texas Department of Transportation, Project #0-6412, 2009-2011, \$132,391, Co-PI.
- Kazem Mahdavi, Deborah Koslover, and Leonard Brown, “*Interactions between Representation Theory, Quantum Field Theory, Category Theory, and Quantum Information Theory*”, National Science Foundation, Award #DMS-0901385, 2008, \$10,000, Co-PI.
- Leonard Brown, “*A Database Management System to Automate the Creation of PACE Reports*”, Center for Research, Evaluation and Advancement of Teacher Education (CREATE), University of Houston, 2008, \$18,693, PI.
- Carol Kilmon, Sumit Ghosh, Artur Mikitiuk, and Leonard Brown, “*A Computer-Assisted Immersive Training Environment for Nurses to Use Emergency Crash Carts*”, Faculty Research Grant, University of Texas at Tyler, 2006-2007, \$14,500, Co-PI.
- Arun Kulkarni, Leonard Brown, and Sumit Ghosh, “*Computer Vision Laboratory for Interdisciplinary Research in Computer Science, Medicine, and Geosciences*”, Research Instrumentation Grant, University of Texas at Tyler, 2005, \$81,525, Co-PI.
- Leonard Brown, “*Improving the Accuracy of Content-Based Image Retrieval Systems by Augmenting the Underlying Databases*”, Faculty Research Grant, University of Texas at Tyler, 2004-2005, \$6,936, PI.

- Leonard Brown, “*Improving the Accuracy of Retrieving by Color in Multimedia Database Management Systems through Augmentation*”, President’s Faculty-Student Summer Research Program, University of Texas at Tyler, 2004, \$6,000, PI.

## **HONORS AND AWARDS**

- Outstanding Professor of the Year – Computer Science, The University of Texas at Tyler, College of Engineering and Computer Science, 2014, 2011.
- Research Faculty Award – The University of Texas at Tyler, Office of Sponsored Research, 2012-2013.
- Outstanding Faculty Award in College of Engineering and Computer Science, From Texas Alpha XI Chapter of Alpha Chi National College Honor Scholarship Society, 2011
- NASA Faculty Fellowship Recipient, Jet Propulsion Laboratory, 2004
- Outstanding Graduate Teaching Assistant Award Recipient, The University of Oklahoma, School of Computer Science, May 2003.
- Upsilon-Pi-Epsilon National Computer Science Honor Society Member
- Graduate Assistance in Areas of National Need (GAANN) Fellowship Recipient, U. S. Dept. of Education
- Finalist, The University of Oklahoma Graduate Research Poster Contest

## **PRESENTATIONS/PANELS**

- Speaker for Great Decisions Lecture Series entitled “*Cybersecurity*”, Tyler, TX, January 2012.
- Panelist for Panel Discussion entitled “*Integrating Networking and Databases*”, International Advanced Database Conference, San Diego, California, June 2005.
- “*Accrediting Computing Programs in ABET – A Summary of My Experiences Attending the Best Assessment Processes VII held at Rose-Hulman Institute of Technology, Terre Haute, Indiana, April 8-9 2005*”, Presented to College of Engineering and Computer Science, The University of Texas at Tyler, April 20, 2005.
- “*Augmenting Image Databases to Improve Content-Based Retrieval*”, University of Texas Health Center at Tyler Symposium and Retreat, Tyler, Texas, December 2004.
- Panelist for Panel Discussion entitled “*Graduate School*”, The University of Oklahoma’s Human-Technology Interaction Center Research Experience for Undergraduates Third Annual Alumni Convention, Norman, Oklahoma, July 2001.

## **STUDENT SUPERVISION**

- Wallace, Glen W., M.S. (Non-thesis) Advisor, “*OLAP Data Visualization in Three Dimensions*”, January 2015.
- Deshmukh, Gaurav K., M.S. (Non-thesis) Advisor, “*Fire Detection using Grayscale Video Processing using Black and White Video Cameras*”, December 2014.
- Sikes, Kenneth L., M.S. (Non-thesis) Advisor, “*K-12 Master Schedule Optimization via Guided Automation*”, May 2014.
- Vanukuri, Rajesh, M.S. (Non-thesis) Advisor, “*Automatic Detection of Regions in Images*”, May 2013.
- Mattapelly, Girija S., M.S. (Non-thesis) Advisor, “*Automatically Breaking Text-based CAPTCHAs using Image Processing Techniques*”, May 2013.
- Chava, Spandana C., M.S. (Non-thesis) Advisor, “*Automatically Generating Summaries of Topics*”, May 2012.
- Hearn, Colby B., M.S. (Non-thesis) Advisor, “*Improving Codec Implementation and Maintenance with Dynamic Processing and Visual Specification*”, December 2010.

- Marri, VenkataKiran K., M.S. (Non-thesis) Advisor, “Automating the Insertion Process for an Analytical Query-Processing System with Multiple, External Heterogeneous Data Sources”, December 2009.
- Marri, VenkataKiran K., (Student Research Grant), “Automating the Insertion Procedure for an Analytical Query Processing System with Multiple, External Heterogeneous Data Sources”, Office of Sponsored Research, The University of Texas at Tyler, 2009, \$800.
- English, Jeremy, M.S. (Non-thesis) Advisor, “VisiGroup Image Search: Refining Text-Based Image Searches with Visual Clustering”, May 2008.
- Cherukuri, Anil, M.S. (Non-thesis) Advisor, “Improving Traffic Sign Image Detection by Augmenting the Database”, May 2007.
- Amboji, Peter, M.S. (Non-thesis) Advisor, “Performance Evaluation of Retrieval of Road Sign Images Using Color to Augment the Database”, December, 2005.
- Chittineni, Pranita, M.S. (Non-thesis) Advisor, “Performance Evaluation of Content Based Image Retrieval of Medical Images using Texture on Augmentation”, December, 2004.
- Dukkipati, Padmaja, M.S. (Non-thesis) Advisor, “Improving the Recognition of Geometrical Shapes in Road Signs by Augmenting the Database”, December, 2004.

## **SERVICE**

### *EXTERNAL*

- International Conference on Image Information Processing (ICIIP) – IEEE Sponsored, Program Committee Member, 2011.
- 5<sup>th</sup> International Conference on Information Systems, Technology, and Management (ICISTM), Program Committee Member, 2011.
- 3<sup>rd</sup> International Conference on Contemporary Computing (IC3), Program Committee Member, 2010.
- Texas State Board of Education, Reviewer for Computer Science TAKS (Texas Assessment of Knowledge and Skills), 2010-2011
- Texas Space Grant Consortium (TSGC), University Representative, 2009-2012.
- Texas Space Grant Consortium (TSGC), Grant Reviewer, 2009.
- First IEEE International Workshop on Multimedia Databases and Data Management (IEEE-MDDM), Session Chair, 2006.
- 20<sup>th</sup> Annual ACM Symposium on Applied Computing (SAC), Program Committee Member, 2005
- Texas Computer Education Association (TCEA) State High School Programming Contest, Problem Sets Writer, 2005-present
- Texas Computer Education Association (TCEA) State High School Programming Contest, Head Judge, 2004-2009
- East Texas State Fair, Programming Judge, 2005

### *INTERNAL (UNIVERSITY-LEVEL)*

- Institutional Review Board (IRB) Member, The University of Texas at Tyler, 2006-present
- UT-Tyler Admissions/Recruitment/Retention Committee, 2012-2013
- UT-Tyler Faculty Evaluation Web Site, Developer, 2010-present
- Southern Accreditation of Colleges and Schools (SACS) UT-Tyler Web Site and DVD, Developer and Technical Contact, The University of Texas at Tyler, 2009
- Faculty Senate, Treasurer, The University of Texas at Tyler, 2008-2009
- Faculty Senate, Senator, College of Engineering and Computer Science, The University of Texas at Tyler, 2006-2009

- Graduation Rate Task Force Committee Member, The University of Texas at Tyler, 2006
- Faculty Senate Alpha-Omega Committee Member, The University of Texas at Tyler, 2006

#### *INTERNAL (COLLEGE-LEVEL)*

- Promotion and Tenure Committee Member, College of Engineering and Computer Science, The University of Texas at Tyler, 2010-2011
- Computing Review Committee Member, College of Engineering and Computer Science, The University of Texas at Tyler, 2009
- Introduction to Engineering Committee Member, College of Engineering and Computer Science, The University of Texas at Tyler, 2009
- RISE Camp, Presenter for Computer Science, College of Engineering and Computer Science, The University of Texas at Tyler, 2008-2010
- Strategic Planning Committee Member, College of Engineering and Computer Science, The University of Texas at Tyler, 2007
- Dean Search Committee Member, The University of Texas at Tyler, College of Engineering and Computer Science, 2006
- Presented “*Accrediting Computing Programs in ABET – A Summary of My Experiences Attending the Best Assessment Processes VII held at Rose-Hulman Institute of Technology, Terre Haute, Indiana, April 8-9 2005*” to the College of Engineering and Computer Science, April 2005.

#### *INTERNAL (DEPARTMENT-LEVEL)*

- Graduate Curriculum Refresh Committee, The University of Texas at Tyler, Computer Science Department, 2011
- Departmental Strategic Plan Committee Chair, The University of Texas at Tyler, Computer Science Department, 2010
- Promotion and Tenure Committee Member, Computer Science Department, The University of Texas at Tyler, 2010-2011, 2012-2013
- Departmental Strategic Planning Committee Member, Computer Science Department, The University of Texas at Tyler, 2006-2007
- UT-Tyler ACM Student Chapter, Faculty Sponsor, 2005-present
- UT-Tyler ACM International Collegiate Programming Contest Team Coach, 2005-present
- Chair Search Committee, The University of Texas at Tyler, Computer Science Department, 2005, 2011, 2012
- Faculty Search Committee, The University of Texas at Tyler, Computer Science Department, 2005, 2009
- Judge, The University of Texas at Tyler’s Annual ACM High School Programming Contest, 2004-2007

#### *SERVICE (PRIOR TO UT-TYLER)*

- Teaching Test Graduate Representative, The University of Oklahoma, 2002-2003
- Webmaster, The University of Oklahoma Database Research Group, 2002-2003
- Student Congress Senator, The University of Oklahoma Graduate Student Senator, 1997-1998
- Program Development, Chair, AT&T’s Alliance of Black Telecommunications Employees, 1995

#### PROFESSIONAL ORGANIZATIONS

- ACM (Association for Computing Machinery)
- IEEE (Institute of Electrical and Electronics Engineers, Inc.)