

Benjamin C. Flores, Ph.D.

Contact Information

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Summary: Highly dynamic, awarded professor of Electrical and Computer Engineering with 24 years of experience in engineering education and research, and more than 10 years of experience in higher education administration at the program, departmental, college and institutional level; has secured more than \$32 M from federal and state agencies to enhance STEM academic programs, train hundreds of undergraduate and graduate students, and conduct research in education and radar signal processing.

Education

Ph.D. in Electrical Engineering, The Arizona State University, 1990
Mentor: Thomas E. Tice, Ph.D.
Master of Science in Electrical Engineering, UTEP, 1986
Mentor: Jack Smith, Ph.D.
Bachelor of Science in Electrical Engineering, UTEP, Summa Cum Laude, 1985

Academic Appointments

Professor, Electrical and Computer Engineering, 9/1/2003 – present
Associate Professor, Electrical and Computer Engineering, 9/1/1996 – 8/31/2003
Visiting Researcher, Jet Propulsion Laboratories, 6/1/93 – 7/31/93
Visiting Researcher, Jet Propulsion Laboratories, 6/1/92 – 7/31/92
Assistant Professor, Electrical and Computer Engineering, 9/1/1990 – 8/31/1996

Administrative Appointments

Director and Principal Investigator, UT System Louis Stokes Alliance for Minority Participation, UTEP, 9/1/2004 – Present

Responsibilities. The Director of the UT System LSAMP Program reports directly to the Vice President for Research. The Director oversees the management of all aspects of the LSAMP Program. He directs the recruitment, selection, training and formative assessment of undergraduate research scholars that participate in the program's *Summer Research Academy* and *Summer Research Academy Abroad*. He also directs the recruitment, selection, and mentoring of doctoral-bound graduate students that participate in the program's *Bridge to the Doctorate*. In addition, he conducts the Annual UT System LSAMP Conference and the Annual LSAMP Campus Directors' Meeting,

Reporting lines. Reporting to the Director are the Assistant Director, Finances Coordinator, and the LSAMP campus Directors of 14 institutions participating in the Alliance.

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Interim Director, Environmental Science & Engineering Ph.D. Program, UTEP, 1/15/2014 – 5/31/2014

Responsibilities. The Director of the Environmental and Science (ESE) Ph.D. Program reports directly to the Provost and Vice President of Academic Affairs. The Director chairs the ESE Program Committee and oversees the admission of new doctoral students into the largest STEM Ph.D. program on campus and the development of policy for faculty participation in the Ph.D. program.

Reporting line. Reporting to the Director is the ESE Program Coordinator who advises doctoral students on course availability and enrollment and ensures that they are meeting degree milestones on a timely basis.

Dean, Graduate School, UTEP, 9/1/2012 –7/6/2014

Responsibilities. The Dean reports directly to the Provost and Vice President of Academic Affairs and serves as the chief officer of the Graduate School. The Dean is responsible for implementing and maintaining the integrity of policies and procedures for admissions in nearly 100 graduate programs, directing the recruitment and enrollment of qualified master's and doctoral students, designing and implementing graduate student professional development projects, and certifying all graduate degrees and certificates. The Dean is also responsible for evaluating the performance of 14 staff members in the office. The Dean is member of the Provost's Council and the Dean's Council and ex-officio member of the Graduate Council.

Reporting lines. Reporting to the Dean are the Associate Dean of Graduate Student Success, the Assistant Dean of Graduate Student Services, the Director of Graduate Student Professional Development, the Manager of International Graduate Recruitment, the Associate Director of Graduate Student Progression and Completion, and the Associate Director of Graduate School Finances.

External Service. The Dean represents the Graduate School at meetings of the Texas Higher Education Coordinating Board's Graduate Studies Advisory Committee and the UT System Chancellor's Working Group of Graduate School Deans.

Accomplishments:

- Developed a new mission for the Graduate School in alignment with the institution's goal to become a national research university with a 21st century demographic.
- Restructured the Graduate School organization to improve its functional management and assigned staff responsibilities based on primary and secondary functions.
- Refocused the services of the Graduate School Office into four student-centered areas: recruitment, admissions, professional development and mentoring, and success and postgraduate placement.
- Worked with Graduate Council to review and improve effective policies and procedures for admission into 76 master's and 20 doctoral programs.
- Offered guidance to academic units regarding graduate program development.
- In collaboration with college deans, planned and guided the process of graduate program self-studies and external reviews for quality improvement and efficiency enhancement.
- Designed and implemented the undergraduate/graduate dual credit program to recruit talented UTEP undergraduates into the Graduate School.

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- Planned and implemented international student recruitment strategies to increase enrollment of students from Mexico, South America, and Europe.
- Implemented the PUENTES Program, a campus wide effort to promote excellence of doctoral student mentoring.
- Enhanced doctoral mentor-protégé culture and implemented doctoral milestone agreement for new doctoral students.
- Created and implemented UTEP's first *Graduate Student Resource Center* to support students with their professional development.
- Developed a competitive grant program for graduate student travel and research startups.
- Streamlined procedures for graduation of master's and doctoral students.
- Promoted degree completion of and improved time to degree for doctoral students.
- Secured external fellowship funding for STEM doctoral students and administered funds for NSF Graduate Research Fellowship recipients.

Interim Dean, Graduate School, 9/1/2011 – 8/31/2012

See above.

Acting Dean, Graduate School, 9/1/2010 – 8/31/2011

Responsibilities. The Acting Dean reported directly to the Provost and Vice President of Academic affairs. The position was responsible for managing the day to day operation of the Graduate School and acting on behalf of the Dean of the Graduate School who was on assignment. The Acting Dean is member of the Provost's Council and the Dean's Council and ex-officio member of the Graduate Council.

Reporting line. Reporting to the Acting Dean is the Assistant Dean of Graduate Student Services.

Accomplishment:

- Secured US Department of Education funding for the PUENTES Program, a campus wide effort to promote excellence of doctoral student mentoring.
- Managed graduate student travel grants and dissertation completion fellowships.
- Secured external fellowship funding for STEM doctoral students.
- Defined customer satisfaction goals for Graduate School Office services.

Associate Dean, Graduate School, 9/1/2009 – 8/31/2010

Responsibilities. The position reports directly to the Dean of the Graduate School. The Associate Dean is responsible for promoting graduate student success, particularly in the STEM disciplines, assisting the Dean on strategic planning in the areas of domestic student recruitment, and analyzing the characteristics of doctoral programs.

Accomplishments:

- Secured external fellowship funding for STEM doctoral students.
- Promoted involvement of students in research across campus.
- Planned and implemented a STEM graduate student recruitment, enrollment, and support programs.
- Assisted with the planning of Preparing Future Faculty activities.

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- Promoted UTEP Graduate School programs across Texas through the UT System Alliance for Minority Participation.

Electrical and Computer Engineering Ph.D. Program Director, 9/1/2009 – 8/31/2010

Responsibilities. The position reports to the Dean of Engineering. The Associate Dean is responsible for directing the Master's of Engineering program, chairing the graduate curriculum committee, promoting graduate student enrollment and success, and monitoring doctoral student progression. The Associate Dean is a member of the College of Engineering Leadership Team and the University's Associate Deans' Council.

Reporting Line. Reporting to the Associate Dean is the Assistant Director of Engineering Graduate Studies.

Accomplishments:

- Expanded the number of concentrations offered by the Master of Engineering program to include systems engineering and biomedical engineering
- Produced uniformly designed promotional materials for all engineering doctoral programs.
- Enhanced pathways to Graduate School through aggressive recruitment of undergraduate engineering students.
- Promoted the involvement of outstanding undergraduate students in research in preparation for graduate studies.
- In collaboration with departmental chairs, increased in enrollment of Hispanic Americans and women in selected engineering doctoral programs.

Associate Dean, College of Engineering, 9/1/2006 – 5/31/2008

Responsibilities. The position reports to the Dean of Engineering. The Associate Dean is responsible for directing the Master's of Engineering program, chairing the graduate curriculum committee, promoting graduate student enrollment and success, and monitoring doctoral student progression. The Associate Dean is a member of the College of Engineering Leadership Team and the University's Associate Deans' Council.

Reporting Line. Reporting to the Associate Dean is the Assistant Director of Engineering Graduate Studies.

Accomplishments:

- Expanded the number of concentrations offered by the Master of Engineering program to include systems engineering, biomedical engineering, and engineering education.
- Produced uniformly designed promotional materials for all engineering doctoral programs.
- Enhanced pathways to Graduate School through aggressive recruitment of undergraduate engineering students.
- Promoted the involvement of outstanding undergraduate students in research in preparation for graduate studies.
- In collaboration with departmental chairs, increased in enrollment of Hispanic Americans and women in selected engineering doctoral programs.

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Computing and Electrical Engineering Division Director, 1/16/2005 – 8/31/2006

Responsibilities. The position reports to the Dean of Engineering. The Director is responsible for overseeing two academic departments: Computer Science and Electrical and Computer Engineering.

Reporting Lines. Reporting to the Director are the heads of computer science and electrical and computer engineering.

Accomplishments:

- Appointed the first two women ever to serve as departmental heads in the history of the college.
- Implemented a uniform annual evaluation process that promoted excellence in research, education, and service.
- Refurbished and assigned research space to rising junior faculty.
- Enhanced computer and senior capstone laboratories with state of the art equipment and ergonomic furniture.

Interim Chair, Computer Science, 9/1/2004 – 1/15/2005

Responsibilities. The position reports to the Dean of Engineering. The Chair is responsible for the administration of the department and evaluates annual faculty accomplishments, approves course scheduling, assigns graduate teaching assistantships, and reviews and endorses research proposals.

Chair, Electrical and Computer Engineering, College of Engineering, 9/1/2003 – 1/15/2005

Responsibilities. The position reports to the Dean of Engineering. The Chair is responsible for the administration of the department. The Chair ensures that the mission of the department is carried out. The Chair evaluates annual faculty accomplishments, approves course teaching assignments and faculty workloads, reviews and endorses research proposals, defines new faculty hiring priorities, appoints graduate teaching assistants, manages major fee and technology accounts, oversees outcome based curriculum assessment for accreditation purposes, and fosters relationships with external constituents.

Accomplishments:

- Diversified the faculty body and increased the number of female faculty in the department.
- Increased the enrollment of undergraduate majors to more than 400 individuals.
- Increased undergraduate degree production to more than 50 degrees per semester, the largest growth in the College of Engineering.
- Structured a balanced course schedule for the academic year, creating class sections with a 40:1 student to faculty ratio.
- Implemented a reduced teaching load policy for tenured or tenure-track faculty with external research funding.
- Promoted the appointment of graduate female students to teaching assistantship positions.
- Expanded the external advisory board to include alumni in industrial leadership positions.

Student Appointments

Research Assistant, Electrical Engineering, Arizona State University, 6/1/89 – 7/31/90

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Assistant Instructor, Electrical Engineering, Arizona State University, 1/16/87 – 5/31/89

Research Assistant, Electrical Engineering, UTEP, 6/1/85 – 12/31/86

Undergraduate Research Assistant, Electrical Engineering, UTEP, 6/1/84 – 12/31/84

Math and Science Tutor, UTEP, 1/16/84 – 4/30/84

Undergraduate Research Assistant, Chemistry, UTEP, 6/1/82 – 12/31/83

Educational Research Synopsis

In the educational arena, Dr. Flores is an expert in retention strategies for non-traditional undergraduate and graduate students in the STEM disciplines. From 1999 to 2007 he was the Project Director of the Model Institutions for Excellence Initiative which had a portfolio of student success activities with funding in excess of \$23M. From 2007 to 2012, he was the Director of the UTEP STEM Talent Expansion Project which focused on the implementation of peer led team learning in gateway courses. Currently he is Director of two NSF funded programs: the UT System Louis Stokes Alliance for Minority Participation, the Bridge to the Doctorate Program. These programs support undergraduate and graduate student research. He is also the Director of the PUENTES Program, an initiative supported by the US Department of Education to promote post-baccalaureate opportunities for Hispanic Americans. Through his work on student retention issues, he has gained international recognition as an expert in the effectiveness and impact of strategies for access to higher education. He regularly consults with other institutions, nationally and abroad, on these issues.

Technical Research Synopsis

Dr. Flores' technical expertise is in the area of radar signal processing, analysis and design. With Ph.D. graduates Gabriel Thomas and Jae Sok Son, he co-authored the book *Range-Doppler Imaging and Motion Compensation*. He has also authored multiple refereed conference and journal articles with significant participation of graduate students. Dr. Flores has developed and tested methods for estimating the translational and rotational motion parameters of maneuvering targets and presented an integrated approach for generating radar images of multiple moving targets illuminated by a radar beam. Focusing on motion compensation of radar images, Dr. Flores has examined the development of filtering and reconstruction processes that allow for individual target motion compensation, implemented this approach using the Gabor wavelet transform, and incorporated image enhancement techniques for the generation and identification of simulated and real aircraft images that cannot be obtained using conventional radar processors. More recently, Dr. Flores has studied the effect of electromagnetic plane waves diffracted by targets moving at relativistic speeds and conducted research on chaotic FM signals for wideband radar applications. Additionally, he has done work in the area of chaotic laser systems applied to high resolution range and Doppler imaging.

Synergistic Activities

Radar Signal Processing Group. Collaborators: Patrick Debroux (Army Research Laboratory), Armin Doerry (Sandia National Labs) John E. Gray (Naval Surface Warfare Center), Gabriel Thomas (University of Manitoba), Gabriel Thomas (U Manitoba), Henry Leung (University of Calgary), Hector Ochoa (UT Tyler), Ricardo von Borries (UTEP).

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Promoting Postgraduate Opportunities for Hispanic Americans, PUENTES (funded by US Department of Education). Network: David Trujillo (Northern New Mexico College), Ana Maria Rodriguez (UT Pan American), Laura Leal Rosales (Texas A&M Corpus Christi).

University of Texas System Louis Stokes Alliance for Minority Participation (funded by the National Science Foundation). Collaborators: Helmut Knaust (UTEP), Juan Gonzalez (UT Dallas), Sarah Simmons (UT Austin), Tracie Gibson (UT Permian Basin), Darrell Balderrama (UT San Antonio), Tuncay Aktosun (UT Arlington), Cristina Villalobos (UT Pan American), Stephen Rainwater (UT Tyler), Guillermo Weber (UT Brownsville), Louis Dale (U Alabama).

UTEP STEM Talent Expansion Project (funded by National Science Foundation). Collaborators: Helmut Knaust (UTEP), Jorge Lopez (UTEP), James Becvar (UTEP), Wayne Johnson, (formerly with Hewlett-Packard), Carlos Rodriguez (American Institutes for Research), Cristina Villalobos (UT Pan American), Delia Cruz (New Mexico State University).

UTEP Model Institutions for Excellence Initiative (funded by the National Science Foundation and National Aeronautics and Space Administration). Collaborators: Juan Arratia (Universidad Metropolitana de Puerto Rico), Elaine Davis (Bowie State University), Stacy Phelps (Oglala Lakota College, Al Thompson (Spelman College), Jason Kim (Systemic Research), Jamie Merisotis (Institute for Higher Education Policy), Carlos Rodriguez (American Institutes for Research), David Temple (National Science Foundation).

MECESUP II, Chilean Ministry of Education. Collaborators: Mireya Abarca (Universidad de Antofagasta), Alfonso Diaz and Vesna Karmelic (Universidad de Tarapacá), Susana Gonzalez (Universidad del Bío Bío), Celín Mora (Universidad Técnica Federico Santa María), Eduardo Salazar (Universidad de Concepción), Manuel Salinas (Universidad de Santiago), Vicente Sandoval (Universidad Católica de Temuco).

Funded Projects Related to Student Success (\$31.6M)

Louis Stokes Bridge to the Doctorate (pending)
PI, with Helmut Knaust and Ashanti Johnson (UT Arlington Cohort)
Funding Agency: National Science Foundation
Amount: \$1M
Period: Fall 2014 – Summer 2016

Louis Stokes Bridge to the Doctorate
PI, with Helmut Knaust (UTEP Cohort)
Funding Agency: National Science Foundation
Amount: \$1M
Period: Fall 2013 – Summer 2015

Louis Stokes Bridge to the Doctorate
PI, with Rachel Ruiz, Gail Taylor, Edwin Barea-Rodriguez, Aaron Cassill (UT San Antonio Cohort)
Funding Agency: National Science Foundation
Amount: \$1M
Period: Fall 2012 – Summer 2014

UT System LSAMP: A Senior Alliance
PI, with Helmut Knaust, Cristina Villalobos, Phillip Cohen

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Funding Agency: National Science Foundation

Amount: \$4.0 M

Period: Fall 2012 – Summer 2017

Louis Stokes Bridge to the Doctorate

PI, with Helmut Knaust and Patricia Nava (UTEP Cohort)

Funding Agency: National Science Foundation

Amount: \$1M

Period: Fall 2011 – Summer 2013

S-STEM: Graduate Bridge Program for Highly Achieving Engineering and Computer Science Students

PI, with Carlos Ferregut and Rolfe Sassenfeld

Funding Agency: National Science Foundation

Amount: \$600k

Period: Fall 2011 – Summer 2016

A Model for Improving Doctoral Degree Completion at Emerging Research Institutions with Growing Hispanic Populations

PI, with Patricia Witherspoon, Josefina Tinajero, and Harry Meeuwsen

Funding Agency: US Department of Education

Amount: \$0.5M

Period: Fall 2010 – Fall 2015

Louis Stokes Bridge to the Doctorate (UT Arlington Cohort)

PI, with Dr. Tuncay Aktosun (UT – Arlington)

Funding Agency: National Science Foundation

Amount: \$1M

Period: Fall 2010 – Summer 2012

A Novel Applied Quantum Mechanics Course Aligned with the EE Curriculum

Co-PI, with Stella Quinones (PI)

Funding Agency: National Science Foundation

Amount: \$193,520

Period: Fall 2009 – Summer 2011

NSF Presidential Award for Excellence in Science and Engineering (PAESMEM) Mentoring

Funding Agency: National Science Foundation and White House

Amount: \$10,000

Period: Fall 2009 – Summer 2011

Louis Stokes Bridge to the Doctorate (Cohort VII)

PI and Director, with Helmut Knaust

Funding Agency: National Science Foundation

Amount: \$1M

Period: Fall 2009 – Summer 2011

Louis Stokes Bridge to the Doctorate (Cohort VI)

PI and Director, with Helmut Knaust

Funding Agency: National Science Foundation

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Amount: \$1M

Period: Fall 2008 – Summer 2010

Louis Stokes UT System Alliance for Minority Participation (Phase IV)

PI and Director, with Helmut Knaust

Funding Agency: National Science Foundation

Amount: \$5M

Period: Summer 2007 – Spring 2012

Louis Stokes UT System Alliance for Minority Participation (Phase III)

PI and Director

Funding Agency: National Science Foundation

Amount: \$1M

Period: Spring 2003 – Fall 2008

Louis Stokes Bridge to the Doctorate (Cohort III)

PI and Director

Funding Agency: National Science Foundation

Amount: \$1M

Period: Fall 2005 – Summer 2008

UTEP STEM Talent Expansion Project

PI, with James Becvar (co-PI), Helmut Knaust, Jorge Lopez, Josefina Tinajero

Funding Agency: National Science Foundation

Amount: \$2M

Period: Fall 2007 – Summer 2012

Model Institutions for Excellence Initiative (Phase III)

PI and Director, with Helmut Knaust

Funding Agency: National Science Foundation

Amount: \$2.5M

Period: Fall 2005 – Summer 2007

Creating LCs in the EE Curriculum to Increase Student Throughput

PI and Director

Funding Agency: THECB, Technology Workforce Development

Amount: \$139,000

Period: 2004 – 2006

UTEP's Virtual Development Laboratory

Co-PI, with Dr. Patricia Nava (PI)

Funding Agency: Women and Technology Institute and Hewlett Packard,

Amount: \$120,000

Period: 2002 – 2003

Biology Research Experience for Undergraduates

Co-PI, with Dr. Kristine Garza (PI)

Funding Agency: National Science Foundation, Department of Biological Sciences Funding: \$140,000

Period: 2002 – 2004

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UTEP: A Model Institution for Excellence (Phase II)

PI and Project Director, with Thomas Brady, and Andrew Swift

Funding Agency: National Science Foundation

Funding: \$7.5 million

Period: 2000 – 2003

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Funded Technical Research (\$468k between 2003-2014)

Task Order: A Transmission Line Model for Ground Penetrating Radar
PI and Director

Funding Agency: Army Research Laboratory

Amount: \$44,000

Period: 2010 – 2011

Task Order: Modulated LASER

PI and Director

Funding Agency: Army Research Laboratory

Amount: \$30,000

Period: 2007 – 2008

Task Order: Waveform Reflection at Relativistic Speeds

Funding Agency: Army Research Laboratory

Amount: \$75,000

Period: 2006 – 2008

Multiple Task Orders

PI and Director

Funding Agency: Army Research Laboratory

Amount: \$250,000

Period: 2005 – 2007

Task Order: Automated Infrared Image Manipulation Methods

PI and Director

Funding Agency: Army Research Laboratory

Amount: \$25,201

Period: 2004 – 2005

Task Order: Non-Gaussian Noise Generator

PI and Director

Funding Agency: Army Research Laboratory

Amount: \$44,072

Period: 2003 – 2004

Publications

Books and Chapters

Berenice Verdín and Benjamin C. Flores, Characterization and Optimization of a Chaotic LADAR System for High Resolution Range Determination, in *Chaotic Signal Processing*, Edited by Henry Leung, SIAM- Society for Industrial and Applied Mathematics, 2013.

Ashtari, G. Thomas, H. B. Garcés, and B. C. Flores, Radar Signal Analysis and Design Using Frequency Modulation of Chaotic Signals, in *Principles of Waveform Diversity and Design*, SciTech Publishing, Inc., 2009.

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Benjamin C. Flores, Ann Darnell, and Jana Renner, The Emergence of Undergraduate Research in the Course of Institutional Change, in *Broadening Participation in Undergraduate Research: Fostering Excellence and Enhancing the Impact*, Mary K. Boyd and Jode L. Wesemann, Eds., Council on Undergraduate Research, 2009, pp. 295-306.

Jae Sok Son, Gabriel Thomas, and Benjamin C. Flores, *Range-Doppler Imaging and Motion Compensation*, Artech House, 2001.

Benjamin C. Flores and Roberto Vasquez, Compression of Wideband Returns from Overspread Targets, in *Ultra-Wideband Radar Technology*, Edited by James D. Taylor, CRC Press, 2000.

Journal Articles

Janette C. Briones, Benjamin C. Flores, and Raul Cruz-Cano, Multi-mode radar target detection and recognition using neural networks, *International Journal of Advanced Robotic Systems*, Vol. 9, p1-9. Nov 2012.

A. Ashtari, Gabriel Thomas, W. Kinsner, and Benjamin C. Flores, Sufficient condition for chaotic maps to yield chaotic behavior after frequency modulation, *IEEE Transactions on Aerospace and Electronic Systems*, Vol. 44. No. 3, pp 1240-1248, July 2008.

Benjamin C. Flores, E. A. Solis, and Gabriel Thomas, Assessment of chaos-based FM signals for range-Doppler imaging, *IEE Proc. Radar Sonar Navig.*, Vol. 150, No. 4, August 2003.

Conference Papers and Abstracts

Berenice Verdin, Chandra Pappu, Benjamin C. Flores, Unified Theory for Wideband Signal Processing, Proceedings of the 2014 IEEE Radar Conference, Noise Radar I Session, Paper 9214, May 2014.

Berta Rodriguez Hervas, Michael Maile, Benjamin C. Flores, Comparison of signal processing techniques for Micro-Doppler signature extraction with automotive radar systems, *Proc. of SPIE*, Vol. , Radar Sensor Technology XVI, edited by Kenneth I. Ranney, Armin W. Doerry, May 2014.

Denise Carrejo, Sara Rodriguez, Jessica Shenberger, Yvonne Lopez, and Benjamin C Flores, Learning to mentor and be mentored: Doctoral student and faculty perspectives, Proceedings of the 6th Annual Mentoring Conference 2013, University of New Mexico, Albuquerque, NM, October 29-November 1, 2013.

Sara Rodriguez, Jessica Shenberger, Denise Carrejo, Benjamin C. Flores, and Yvonne Lopez, Learning to mentor and be mentored: The Excellence in Mentoring Lecture Series, Proceedings of the 6th Annual Mentoring Conference 2013, University of New Mexico, Albuquerque, NM, October 29-November 1, 2013.

Todd Ruecker, Denise Carrejo, Yvonne Lopez, Benjamin C. Flores, and Sara Rodriguez, Building a culture of mentoring at an emerging research institution with a Hispanic majority student population: Challenges and successes, Proceedings of the 5th Annual Mentoring Conference 2012, University of New Mexico, Albuquerque, NM, October 24-October 26, 2012.

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Berta Rodriguez-Hervas, Benjamin C. Flores, Chandra S. Pappu, Ricardo F. von Borries, and Patrick Debroux, Testing a transmission line model for homogeneous subsurface media using ground penetrating radar, Proc. of SPIE, Vol. , Radar Sensor Technology XVI, edited by Kenneth I. Ranney, Armin W. Doerry, May 2012.

Chandra S. Pappu, Benjamin C. Flores, Patrick Debroux, Analysis of the ambiguity function for an FM signal derived from the Lorenz chaotic flow, Proc. of SPIE – Vol. , Radar Sensor Technology XVI, edited by Kenneth I. Ranney, Armin W. Doerry, May 2012.

Ariana Arciero-Pino, Benjamin C. Flores, Helmut Knaust, Work in progress – The University of Texas System Louis Stokes Alliance for Minority Participation: A state-wide initiative to promote STEM undergraduate research, Proceedings - Frontiers in Education Conference (FIE), January 2012.

Benjamin C. Flores, Chandra S. Pappu, and Berenice Verdin, Generation of FM signals with quasi-chirp behavior using three dimensional chaotic flows, Proc. of SPIE, Vol. 8021, Radar Sensor Technology XV, edited by Kenneth I. Ranney, Armin W. Doerry, April 2011.

Tuncay Aktosun, Ariana Arciero, Benjamin C. Flores, Helmut Knaust, Cristina Villalobos, Work in progress – The bridge to the doctorate experience: A reflection on best practices and project outcomes, Proceedings - Frontiers in Education Conference (FIE), January 2011.

Ariana Arciero, Benjamin C. Flores, and Helmut Knaust, International Conference Participation for Undergraduate Scholars through the University of Texas System Louis Stokes Alliance for Minority Participation, 40th ASEE/IEEE Frontiers in Education Conference, October 27-30, 2010, Washington, D.C.

Patricia Witherspoon, Benjamin C. Flores, Yvonne Lopez, and Helmut Knaust, The University of Texas at El Paso: Promoting STEM Doctoral Student Success through Mentoring and Professional Development Activities, 2010 NSF EHR Joint Annual Meeting, June 2010, Washington, DC.

Benjamin C. Flores, Ann Darnell, James Becvar, Helmut Knaust, Jorge Lopez, and Josefina Tinajero, Implementing peer led team learning in gateway science and mathematics courses for engineering majors, 2010 ASEE Annual Conference and exposition, Louisville, KY, June 20 -23, 2010.

Benjamin C. Flores and Chandra Pappu, Generation of High Range Resolution Radar Signals Using the Lorenz Chaotic Flow, Proceedings of SPIE – Vol. 7669, Radar Sensor Technology XIV, edited by Kenneth I. Ranney, Armin W. Doerry, April 2010.

Benjamin C. Flores and Berenice Verdin, Characterization of high resolution range and Doppler LADAR, Proceedings of SPIE – Vol. 7460, Lidar Remote Sensing for Environmental Monitoring, Upendra N. Singh, Editor, August 3, 2009.

James E. Becvar, A.E. Dreyfuss, Benjamin C. Flores, W.E. Dickson, 'Plus Two' peer-led team learning improves student success, retention, and timely graduation, 38th Annual Frontiers in Education Conference, , Saratoga Springs, NY, October 22-25, 2008.

Ariana Arciero, Benjamin C. Flores, and Miguel Paredes, Work in Progress –Perceptions of scholars in the UT System LSAMP Bridge to the Doctorate project, 37th ASEE/IEEE Frontiers in Education Conference, , Milwaukee, WI, October 10 – 13, 2007.

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Ali Ashtari, Gabriel Thomas; Hector Garcés, and Benjamin C. Flores, Radar signal design using chaotic signals, 2007 International Waveform Diversity and Design Conference, Pisa, Italia, June 4-8, 2007.

Ricardo von Borries, Richard Baraniuk, C. Sidney Burrus, and Benjamin C. Flores, DSpanish: Community-based, Multilingual DSP Education in English and Spanish, 12th Digital Signal Processing Workshop, - 4th Signal Processing Education Workshop, September 24-27, 2006.

Benjamin C. Flores and Ann Darnell, A Ten Year Perspective on Changes in Engineering Education, 2006 ASEE Annual Conference, Chicago, IL, June 18-21, 2006.

Ariana Arciero and Benjamin C. Flores, Work in Progress: Expanding the Ph.D. STEM student pool along the US-Mexican border, 36th ASEE/IEEE Frontiers in Education Conference, San Diego, CA, October 28 – 31, 2006.

Scott Starks, Benjamin C. Flores, and Gerardo Rosiles, “Implementing Active, Collaborative and Team-Based Learning in a Probability Course for Engineers,” International Conference on Engineering Education, 2006.

Hector Ochoa and Benjamin C. Flores, Doppler correction for high-velocity targets using a relativistic approach, Proceedings of SPIE – Volume 6210, Radar Sensor Technology X, Robert N. Trebits, James L. Kurtz, Editors, May 8, 2006.

Hector Garcés and Benjamin C. Flores, Statistical analysis of Bernoulli, logistic, and tent maps with applications to radar signal design, Proceedings of SPIE – Volume 6210, Radar Sensor Technology X, Robert N. Trebits, James L. Kurtz, Editors, May 8, 2006.

Berenice Verdín and Benjamin C. Flores, Wideband radar imaging using chaotic-based Gaussian frequency modulation, Proceedings of SPIE – Volume 6210 Radar Sensor Technology X, Robert N. Trebits, James L. Kurtz, Editors, May 8, 2006.

Rebecca Sullivan, Benjamin C. Flores, and Berenice Verdín, Modeling of FM broadcast signals with applications in bistatic radar imaging, Proceedings of SPIE – Volume 6210, Radar Sensor Technology X, Robert N. Trebits, James L. Kurtz, Editors, May 8, 2006.

Benjamin C. Flores, Berenice Verdin, Gabriel Thomas and Ali Ashtari, Generation of Quasi-normal Variables using Discrete Chaotic Maps, Proceedings of SPIE, Volume 5788, Radar Sensor Technology IX, Robert N. Trebits, James L. Kurtz, Editors, May 2005.

Benjamin C. Flores, Ann Darnell, Janna Renner, and Aida Rubio, A Comprehensive Program Assessment of the Persistence and Pursuance of Graduate Degrees of Undergraduate Research Students, Proceedings of the American Society for Engineering Education, 2005.

Benjamin C. Flores, Gabriel Thomas, and Hector Ochoa, Resolution Issues in the Analysis of Radar Signals, Robert Trebits et al, Eds., SPIE Proceedings 5410, Radar Sensor Technology VIII and Passive Millimeter-Wave Imaging Technology VII, pp. 53-63, April 2004.

Benjamin C. Flores, Jana Renner, Helmut Knaust, Ann Darnell, Lilly Romo, and Connie Kubo Della-Piana, The Effectiveness of a Mathematics Review for Student Placement into College-Level

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Mathematics, Proceedings of the 2003 American Society for Engineering Education Annual Conference & Exposition, 2003.

Patricia Nava, V. Granda, and Benjamin Flores, Increasing Women's Impact on Technology: UTEP-VDC Site, Proceedings of Frontiers in Education 2003: Engineering as a Human Endeavor Conference, 2003, pp. F1D14-F1D17.

Rosa Gomez, A. Arciero, P. Nava, E. Martin Del Campo, and Benjamin Flores, Giving Women in Science, Engineering, and Mathematics Support and Leadership Experience through a Women in Science and Engineering Program at the University of Texas at El Paso, Proceedings of the American Society for Engineering Education Annual Conference & Exposition, June 2003.

Presentations

College student mobility on the US-Mexican border: a panel summary, Bilateral Forum on Higher Education, Innovation and Research, The University of Texas at El Paso, March 6, 2014

Broadening Participation in STEM: Minority Serving Institutions (MSI) perspectives, American Indian Higher Education Consortium Broadening Research to Practice Prosperity Game, Howard University, Washington, DC, February 4, 2014

Case example of co-curricular student support: The UTEP experience, Workshop on Barriers and Opportunities to 2 and 4 Year STEM Degrees, National Research Council, Irvine, CA, January 22, 2014

Developing graduate writing support at three Hispanic serving institutions, with S. Simpson, T. Ruecker, and H. Gonzalez, 6th Annual Mentoring Conference 2013, University of New Mexico, Albuquerque, NM, October 30, 2013

Developing holistic support systems for minority students, US NEWS STEM Solutions, the National Conference, Austin TX, June 18, 2013

The broadening participation landscape: Challenges and opportunities in graduate STEM and SBE disciplines, 2nd Annual UTEP Graduate Research Expo, University of Texas at El Paso, November 9, 2012

From being mentored to becoming a mentor: A personal journey, West Texas STEM Undergraduate Research Conference, Midland College, Midland, Texas, October 6, 2012

UT System Louis Stokes Alliance for Minority Participation: Impact on underrepresented minority STEM students, LSAMP PI/PD Meeting and Poster Session on the Hill, Rayburn House Building, Washington, DC, July 22, 2010

Assessment to document good teaching, Center for Effective Teaching and Learning workshop, El Paso, Texas, February 23, 2010

Going to graduate school: your best option, EE Senior Professional Orientation Seminar, University of Texas at El Paso, January 2010

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Optimization of the Lyapunov exponent via a parameter space search, Constraint Programming and Decision Making Workshop, University of Texas at El Paso, November 10, 2009

Mentoring and the world of postdocs, 6th Annual Institute on Postdoctoral Preparation, Howard University and University of Texas at El Paso AGEP, El Paso, TX, September 25, 2009

Identificación y evaluación del nivel de desarrollo de competencias transversales, Universidad de Tarapacá, Arica, Chile, August 13, 2009

Elaboración de instrumentos de identificación y evaluación de competencias transversales, Universidad de Tarapacá, Arica, Chile, August 12, 2009

Visión sistemática de programas para estudiantes con dificultades académicas, Universidad de Antofagasta, Antofagasta, Chile, August 5, 2009

Modularización de asignaturas de Matemáticas: Perspectivas teóricas y prácticas Universidad del Bío Bío, Concepción, Chile, July 8, 2009

Strategies for pre-engineering and pre-science student success, NSF Tribal Colleges and Universities Program workshop, Arlington, VA, February 21, 2009

A tradition of access and excellence at an urban minority serving institution, New York City Tech, New York, NY, September, 2008

Strategies for student support at an urban institution, MIE Dissemination Conference, Xavier University, New Orleans, January 26, 2008

UTEP student success stories: Danny Olivas and many more, NASA STS-122 Launch Conference, Cocoa Beach, Florida, December 5, 2007

La evolución de la investigación y el desarrollo tecnológico en TIC en Norte América, XX Congreso Nacional y VI Congreso Internacional de Informática y Computación, Chihuahua, México, October 26, 2007

Aligning reward systems to institutional missions: balancing access and excellence, National Academy of Engineering Partnerships for Emerging Research Institutions: A Workshop, Washington, DC, September 13, 2007

Making a college-going culture real, National Association of Latino Elected Officials Third Annual Summit on the State of Latino Education, Washington DC, October 10, 2007

A model for STEM faculty enhancement, NSF Joint Annual Meeting, Washington DC, August 13, 2007

Selecting indicators for STEM Program assessment and evaluation: IHEP Summer Academy, Albuquerque, New Mexico, July 25, 2007

Creating learning communities to increase EE major throughput, Second Annual Technology Workforce Development Workshop, Austin TX, March 6, 2007

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A tradition of access and excellence, Hispanic Association of Colleges and Universities 20th Annual Conference, San Antonio, TX, October 29, 2006

STEM student outreach and retention, The Model Institutions for Excellence Dissemination Conference, Bowie, MD, October 12, 2006

"Un Ejemplo de Excelencia" in Education, 2006 Excelencia Symposium, Orlando, FL, September 27, 2006

Outlining research goals as part of a research plan, 3rd Annual Institute on Postdoctoral Preparation, Howard University and University of Texas at El Paso AGEP, Cloudcroft, NM, March 24, 2006

Closing the gap in education: An Overview of UTEP's MIE Program, Southwest Regional P-16 Conference - Austin, TX, April 25, 2006

The UTEP Model Institutions for Excellence initiative, Project Kaleidoscope Workshop Presentation - San Antonio, TX, February 24, 2006

The University of Texas at El Paso: A Model Institution for Excellence, MIE Dissemination Conference, Carolina, PR, February 3, 2006

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Student Mentoring and Training

Ph.D. Graduates

Berta Rodriguez Hervás, *Automotive Micro Doppler Radar: Low RCS Target Detection and Classification* (Est. Fall 2015)

Chandra Pappu, *Performance of Chaotic radar in the Presence of Electronic Countermeasures* (Est. Fall 2014)

Janet Cano Briones, *Cognitive Radar for Border Surveillance and Security* (2014)

Berenice Verdín, *Characterization of High Resolution Range and Doppler Chaotic LADAR* (2009)

Hector Ochoa, *Radar Signal Analysis for High Velocity Targets using the Electromagnetic Field Tensor and the Lorentz Transformation* (2007)

Hector Garcés, *Chaotic Signal Analysis and Design for Wideband Radar* (2007)

Gabriel Thomas (1997)

Jae Sok Son (1997)

Recent M.S. Graduates

Pappu Chandra, *Three Dimensional Chaotic Flows as Signal Generators* (2010)

Anuj Gupta, *Chaotic Behavior of Double Pendulum* (2008)

Erika Jackson, *Image Interpolation and Extrapolation using Vectors and Pixel Time Series* (2005)

Berenice Verdín, *Generation of Quasi-Normal Variables using Chaotic Maps* (2005)

Rebecca Sullivan, *Modeling of FM Broadcast Signals for use in Bistatic Radar Applications* (2004)

Hector Ochoa, *Resolution Issues in Radar Signal Analysis* (2003)

Teaching

My general practice over the last five years has been to implement active learning in the classroom with a focus on formal cooperative (team based) learning or informal cooperative learning, depending on the size of the classroom.

Graduate Courses

Chaotic Signals and Systems
LSAMP Graduate Seminar: Topics in Higher Education
Radar Signal Processing

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Antenna Theory
Tomographic Imaging
Detection and Estimation Theory

Undergraduate Courses

High Resolution Radar
Antenna Principles
Microwave Devices
Optical Electronics
Electromagnetic Field Theory
University Seminar
Solid State Physics
Electronic Devices
Electronics
Electric Circuits
Freshman Seminar

Service

Advisory Boards

STEM Talent Expansion Program External Advisory Board, New Mexico State University, fall 2009 – fall 2010

STEM Talent Expansion Program External Advisory Board, Texas A&M University Corpus Christi, fall 2010 – fall 2012

ADVANCE External Advisory Board, New York City College Tech, spring 2009 – fall 2010

Journal Article Reviewer

IEEE, IEE, Chaos

NSF Proposal Panelist

Curriculum, Course, and Laboratory Innovation (2008, 2009, 12 proposals per year)

Engineering Education and Centers (2008, 12 proposals)

Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring (2011, 2008, 12 proposals per year)

National Science Digital Libraries (2005, 2006, 12 proposals per year)

STEM Talent Expansion Program (2011, 2009, 12 proposals)

Tribal Colleges and Universities Program (2009, 10 proposals)

UT System LSAMP

Directed and hosted UT System LSAMP Conferences in which undergraduate students that participate in a state wide summer exchange program present their research efforts:

Midland, Texas, 2013

El Paso, Texas, 2012

Arlington, Texas, September 15-17, 2011

El Paso, Texas, September 16-18, 2010

Austin, Texas, September 10-12, 2009

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El Paso, Texas, September 18-20, 2008
San Antonio, Texas, September 26-29, 2007
El Paso, Texas, September 20-23, 2006

University

Academic Unit Review Process Committee (August 2011- October 2011)
Institutional Enrollment Planning Committee (December 2010 – April 2011)
Selection Committee for Achievement Award for Service (Spring 2009 – Spring 2010)
Mentoring Program Mentor (Spring 2009 – Spring 2011)
President's Advisory Committee on Diversity, Chair (Fall 2006 – Fall 2010)
Intercollegiate Athletics Council (Fall 2006 – Present)
Foundations of Excellence Committee (Fall 2007 – Fall 2009)
Library Director Search (Summer 2007)
International Programs Office Director Search (Spring 2007)

In addition, hosted and coordinated visits by multiple administrator/faculty teams from:

City University of New York
New York City Tech, Brooklyn
Oglala Lakota College
South Dakota School of Mines
Universidad Autónoma de Chihuahua, México
Universidad del Bío-Bío, Chile
Universidad de Concepción, Chile
Universidad de Playa Ancha, Chile
Universidad de Santiago, Chile
Universidad Técnica Federico Santa Maria, Chile

College

Faculty Council Member (Fall 2008- Summer 2009)
Director, Master of Science in Engineering (Fall 2006 – Summer 2007)
Hosted and coordinated MIE Engineering Education Workshop, August 24, 2007
Founding Counselor of the UTEP student chapter of National Society of Black Engineers (Fall 2003)

Department

ECE Ph.D. Program Director (September 2009 – August 2010). Reviewed all applications for admission into Ph.D. program, organized and proctored qualifying examinations, approved Ph.D. student degree plans, and verified dissertation requirements.
Undergraduate EE major transition advisor (September 2005 – December 2008). Met with every new incoming student majoring in EE to discuss degree plan and career pathways, and schedule courses.
Fields and Electronic Devices Curriculum Committee Chair (September 2008 – present). Maintained quality control of courses for accreditation purposes in the areas of electronic devices and electromagnetic field theory.
Tenure and Promotion Committee (1996 – 2010). Analyzed, deliberated, and approved faculty dossiers submitted for tenure and promotion.
EE Honor Society Counselor (2009 – present)

Local Community Service

Irving High School STEM Academy, spring 2013 - present
El Paso Insights Museum Board, spring 2010 – fall 2010

Benjamin C. Flores, Ph.D.

El Paso Community College Diversity Programs Advisory Board, fall 2009 – fall 2011

Consulting

Institute for Higher Education Policy

- a) Summer Academy Advisor. Assisted college and university teams that worked collaboratively to create action plans for increasing access and success for students of color in higher education.
- b) Model Replication Institutions Advisor. Assisted two institutions in implementing proven strategies to increase participation, retention, and graduation for students of color in science, technology, engineering, and math (STEM) fields:
 - New York City Tech – Undergraduate Research Program
 - Texas A&M Corpus Christi – Undergraduate Excellence Center

Chile's Ministry of Education

- a) MECESUP. Assisted the leadership of the program in developing a call for proposals for STEM first year programs and reviewed proposals.
- b) Technical Advisor on curriculum reform.
 - Universidad Católica de Temuco
 - Universidad de Tarapacá
 - Universidad de Santiago
 - Universidad de Concepción
 - Universidad del Bío-Bío
 - Universidad de Playa Ancha
 - Universidad Técnica Federico Santa María

National Awards

2009 NSF Presidential Award for Excellence in Science and Engineering (PAESMEM) Mentoring
2006 ABET President's Awards for Diversity
2006 Examples of Excelencia in Education Award
2005 Texas Higher Education STAR Award

Institutional Recognitions

2012 UTEP Office of Research and Sponsored Projects Millionaire Fund Raising Club
2011 UTEP Office of Research and Sponsored Projects Millionaire Fund Raising Club
2007 UTEP Outstanding Service to Students by a Faculty Member
2003 Outstanding ECE Professor of the Year Award

Professional Membership

American Society for Engineering Education (ASEE)
American Association for the Advancement of Science (AAAS)
International Society for Optical Engineering (SPIE)

Honors

Eta Kappa Nu, the Electrical Engineering Honor Society
Tau Beta Pi, the Engineering Honor Society
Robert A. Welch Foundation Undergraduate Scholar
Benito Juarez Good Neighbor Undergraduate Scholar

Registration

National Society of Professional Engineers 3000003057