

ANTONIO H. COSTA

College of Engineering
University of Massachusetts Dartmouth
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EDUCATION

Ph.D., University of Rhode Island, August 1994

Major Field: Electrical Engineering

Dissertation: *Multiform, Tilttable Time-Frequency Representations and Masked Auto Wigner Distribution Synthesis*

M.S., University of Massachusetts Dartmouth, June 1985

Major Field: Electrical Engineering

Thesis: *Maximum Entropy Spectral Analysis on an IBM Personal Computer*

B.S. (*summa cum laude*), University of Massachusetts Dartmouth, June 1983

Major Fields: Computer Engineering, Computer Science, Electrical Engineering, Mathematics

Engineering Transfer Program, Bristol Community College, 1978-1980

EXPERIENCE

Interim Dean, College of Engineering, University of Massachusetts Dartmouth, North Dartmouth, Massachusetts, September 2005-August 2007

Administered a six-department College that offers undergraduate and graduate degrees in all of its disciplines including the only stand-alone Ph.D. degree within the university; managed a division with three administrators, 70 faculty and 22 support staff with an overall budget near \$10M, an operating budget of approximately \$1.5M and annual expenditures on externally funded grants/contracts of around \$3.1M.

College

- Bachelor of Science degree in Bioengineering (multi-disciplinary proposal)
- Master's in Engineering Management (joint proposal with the Charlton College of Business)
- [Accreditation Board for Engineering and Technology](#) (ABET, two interim reports)
- Research Seed Initiative Fund (revamped process; introduced accountability)
- Member, Operating Board, [National Textiles Center](#)
- Open communication lines between faculty/staff and the Office of Research Administration
- Strategic Planning Task Force (Goal: to develop an all-inclusive business plan for the College)
- Transfer articulation agreements (Bristol Community College)
- Online curriculum [flowcharts](#) for all undergraduate programs
- Establishment of pathways program
- Student evaluations of teaching effectiveness (common form; tightened process)
- Major re-structuring of the [Cooperative Education and Internship Program](#)

- Revamping of [Freshmen Summer Institute](#)
- Publication of first [annual report](#) (2005-2006) for the college
- Publication of second [annual report](#) (2006-2007) for the college
- Admissions (recruitment; [brochure](#); poster; [open houses](#) and discovery days)
- First Annual College of Engineering Convocation (scholarship awards)
- College's commencement ceremony

Stewardship

- Successful administration of budget (equitable distribution of resources among departments)
- Synergies (computer engineering and computer science; civil engineering and mechanical engineering; electrical engineering and mechanical engineering; electrical engineering and physics; civil engineering, electrical engineering, materials and mechanical engineering)
- College-wide online surveys (Current Student, [Senior Exit](#), [Graduate Student Exit](#))
- Review and reassignment of space (Textiles building)
- Complete design of college's [web site](#)

Outreach Activities

- Community ([Newsletter](#), [e-News](#), [web site](#), holiday cards, recruitment video)
- Students (support meetings and events with graduate students; opportunities for selected senior groups to present their design projects at national competitions and to local industry; visits to several high schools to disseminate and market college's programs)
- Industry (meetings with industrial advisory boards; visits to companies; Massachusetts Business Connect, Defense Workforce Project)
- Partnership Agreement between the Naval Undersea Warfare Center Division and the University of Massachusetts Dartmouth (Partnership Program Manager for UMass Dartmouth)
- Alumni (feature articles in newsletter; dedicated web page)
- International exchange programs with Germany, Italy and Peru

University Service

Management

- Yardley Research Group (review of graduate programs)
- Human Resources Consulting Company
- Shared Governance meetings
- Chancellor's Colloquia
- Strategic Plan update

Search and Screens

- Director, Human Resources
- Provost
- Assistant Vice Chancellor for Institutional Research, Planning and Assessment

Personnel Hiring

- Assistant Professor (joint appointment in computer engineering and computer science)
- Assistant Professor (appointment in electrical and computer engineering)
- Associate Dean
- Assistant Dean
- Writer/Editor
- Administrative Assistant ([Cooperative Education and Internship Program](#))
- Clerk IV (electrical and computer engineering)
- Clerk IV (physics)
- Part-time lecturers (several departments)

Professional Meetings/Memberships

- Bristol Community College's Engineering and Technology Advisory Board
- ABET Annual Meeting, Arlington, VA
- Regional Conference on Race Relations, Boston, MA
- Science, Technology, Engineering and Mathematics (STEM) Meeting, Sturbridge, MA
- Fact-Finding Investigation (seminars on termination, performance evaluations, progressive discipline)
- Lecture Presentation: Objects of Transformation, Martin Hall (Deputy Vice Chancellor and Professor, University of Cape Town, South Africa), Boston, MA

Program Overview

- [Center for Rehabilitation Engineering](#)
- [Cooperative Education and Internship Program](#)
- [IMPULSE Program](#)

Renovations

- Dean's office, foyer, and entrance
- Computer science labs (lab furniture and computers; lab section size increased from 16 to 24)
- Freshmen IMPULSE labs (carpeting, furniture, computers, dual projection systems)
- Textiles building basement (re-modeling of space into classrooms and laboratories)

Communication

- Weekly meetings held with department chairpersons
- Semi-annual meetings held with support staff, technical staff and graduate program directors
- Semi-annual meetings of faculty/staff

Chairperson, Department of Electrical and Computer Engineering, University of Massachusetts Dartmouth, North Dartmouth, Massachusetts, June 2002-August 2005

Administered a department composed of approximately 20 faculty, three technicians and two secretaries and offering two B.S. degrees, two M.S. degrees and a Ph.D. degree in electrical engineering; led major overhaul and renovation of all department laboratories as well as major activities aimed at recruiting and retaining students (visits to high schools, development of informational [brochures](#) on each academic program); opened up communication channels with department's alumni (fully re-designed web site, published first [newsletter](#)) and created a vibrant industrial advisory board; developed online surveys (senior exit, [employer](#), [alumni](#)) whose results were a key component used in the re-accreditation effort in October 2004. Both the computer engineering and electrical engineering programs were re-accredited by ABET.

- Treasurer, Faculty Federation
- Member, Faculty Federation Executive Board
- Member, University Budget Review Board
- Member, Executive Board, Center for Portuguese Studies and Culture
- Member, Search and Screen Committee for new Associate Dean (College of Engineering)
- Member, Faculty Federation Negotiating Team
- Participant, American Federation of Teachers 2002 Special Leadership Conference, Washington, DC

OTHER EXPERIENCE

UNIVERSITY OF MASSACHUSETTS DARTMOUTH, NORTH DARTMOUTH, MASSACHUSETTS

Professor, Electrical and Computer Engineering, September 1997-present

- Chairperson and Member, Graduate Committee
- Chairperson and Member, Electrical Engineering Curriculum Committee
- Chairperson, University Sabbatical Leave Committee
- ABET Coordinator, electrical engineering program
- Member, Faculty Federation Negotiating Team
- Member, Executive Board, Center for Portuguese Studies and Culture
- Member, Laboratory Committee
- Member, Search and Screen Committee for new faculty
- Member, College of Engineering Academic Council
- Member, Faculty Senate
- Member, Search and Screen Committee for new Chancellor
- Member of UMass Dartmouth's Graduate Biomedical Engineering/Biotechnology Committee

Graduate Courses

- Adaptive Filtering
- Advanced Topics in Digital Signal Processing
- Digital Spectral Estimation
- Discrete-Time Signal Processing
- Random Signals and Systems
- Time-Frequency Signal Processing
- Wavelets

Undergraduate Courses

- Computer Programming in C
- Data Structures and Algorithms in C
- Digital Signal Processing
- Mathematics for Computing
- Signals and Systems
- Software Engineering

Graduate Students

- Sreekar Javvadi (2006)
Thesis: *An Autoregressive Technique for Range Alignment in Inverse Synthetic Aperture Radar Images*
- Mr. Vincent Benfeito (2005)
- Masiar Makkinejad (2005)
Thesis: *A Constant Modulus Algorithm Based Frequency-Domain Approach to Blind Equalization for Frequency Selective Multipath Channels*
- Paul Costa (2004)
- Rama Malladi (2003)
Thesis: *Speckle Filtering of SAR Images Using Hölder Regularity Analysis of the Sparse Code*
- Stephan Hengstler (2001)
Thesis: *A Novel Chirp Modulation Spread Spectrum Technique for Multiple Access*
- Stephan Sand (2001)
Project: A Novel Interactive Approach for Designing 2-D Filters
- Walter Gomes (1999)
- Yibin Yang (1998)
Project: *The Development of Software for Interactive Spectrum and Time-Frequency Analysis in MatLab™ and its Application in Speech Phoneme Processing*

- Helmut Ketterer (1997)
Thesis: *A Modified Smoothed Wigner Distribution Signal Synthesis Algorithm and Short-Time and Orthogonal Approaches for Time-Frequency Analysis*

Reviewer

- IEEE Signal Processing Letters
- IEEE Transactions on Signal Processing
- Signal Processing (Journal of the European Association for Signal Processing)
- European Signal Processing Conference

Associate Professor, Electrical and Computer Engineering, January 1995-August 1997

- ABET Coordinator, electrical engineering program

Associate Professor, Electrical Engineering Technology, September 1993-December 1994

Assistant Professor, Electrical Engineering Technology, September 1989-August 1993

- Awarded tenure, September 1991

Full-Time Lecturer, Electrical Engineering Technology, September 1987-August 1989

Full-Time Lecturer, Electrical and Computer Engineering, September 1986-August 1987

Full-Time Lecturer, Electrical and Computer Engineering & Computer and Information Science, September 1985-August 1986

Consulting

- Mitili, Inc., North Dartmouth, MA (1987-1991)
Consultant on software development techniques for signal processing
- Naval Undersea Warfare Center, Newport, RI (1987-1989)
Consultant on high resolution spectral estimation using in-water torpedo array data
- Information Research Laboratory, Inc., North Dartmouth, MA (1986-1987)
Consultant on multichannel spectral analysis for nondestructive evaluation of materials
- U. S. Windpower, Inc., Burlington, MA (1985)
Consultant on a Kalman filtering prediction technique
- University of Massachusetts Dartmouth, North Dartmouth, MA (1984-1985)
Taught computer programming courses in the division of Professional and Continuing Education

HONORARY AND PROFESSIONAL MEMBERSHIPS

- [Eta Kappa Nu Association](#) (Electrical and Computer Engineering Honor Society)
- [Tau Alpha Pi](#)
- [American Society for Engineering Education](#) (ASEE)
- [Institute of Electrical and Electronics Engineers](#) (IEEE)

HONORS/INTERVIEWS

- Honored by the regional Portuguese-American community (November 26, 2006)
- [The Portuguese Times](#)
- [Golden Key International Honour Society](#)
- [O Jornal](#)
- [The Dartmouth-Westport Chronicle](#)
- Summer Faculty Fellow of U.S. Navy - ASEE Summer Faculty Research Program (1987 and 1988)

LANGUAGES

- Portuguese
- French
- Spanish

PUBLICATIONS

Peer-Reviewed Journal Papers

U. Qidwai, A. H. Costa, and C. H. Chen, "Detection of Ultrasonic NDE Signals Using Time-Frequency Analysis," *Insight*, vol. 41, no. 11, pp.700-703, November 1999. (Google Scholar: Cited by 1)

A. H. Costa and G. F. Boudreaux-Bartels, "An Overview of Aliasing Errors in Discrete-Time Formulations of Time-Frequency Representations," *IEEE Transactions on Signal Processing*, vol. 47, pp. 1463-1474, May 1999. (Google Scholar: Cited by 11)

A. H. Costa and G. F. Boudreaux-Bartels, "Design of Time-Frequency Representations Using a Multiform, Tiltable Exponential Kernel," *IEEE Transactions on Signal Processing*, vol. 43, pp. 2283-2301, October 1995. (Google Scholar: Cited by 13)

F. Hlawatsch, A. H. Costa, and W. Krattenthaler, "Time-Frequency Signal Synthesis with Time-Frequency Extrapolation and Don't-Care Regions," *IEEE Transactions on Signal Processing*, vol. 42, pp. 2513-2520, September 1994. (Google Scholar: Cited by 8)

Refereed Conference Papers

R. K. Malladi, D. Kasilingam, and A. H. Costa, "Speckle Filtering of SAR Images Using Hölder Regularity Analysis of the Sparse Code," in *Proceedings of the IEEE International Geoscience and Remote Sensing Symposium (IGARSS 2003)*, Toulouse, France, pp. 3998-4000, July 21-25, 2003. (Google Scholar: Cited by 1)

S. Hengstler, D. P. Kasilingam, A. H. Costa, "A novel chirp modulation spread spectrum technique for multiple access," in *Proceedings of the IEEE International Symposium on Spread Spectrum Techniques and Applications (ISSSTA 2002)*, Prague, Czech Republic, vol. 1, pp. 73-77, September 2-5, 2002. (Google Scholar: Cited by 3)

S. Hengstler, S. Sand, and A. H. Costa, "Adaptive Autoregressive Modeling for Time-Frequency Analysis," in *Proceedings of the Third International Conference on Information, Communications and Signal Processing (ICICS 2001)*, Singapore, October 15-18, 2001.

J. Wang, X. Yan, A. H. Costa, and D. Kasilingam, "A Weighted Decomposition of the Wigner Distribution," in *Proceedings of the 11th IEEE Workshop on Statistical Signal Processing*, Singapore, August 6-8, 2001.

R. Suzuki, J. R. Buck, and A. H. Costa, "Analysis Filterbank With Arbitrary Frequency and Bandwidth Using a Multitaper Technique," in *Proceedings of the 140th Meeting of the Acoustical Society of America, NOISE-CON 2000*, Newport Beach, California, USA, December 3-8, 2000.

- U. Qidwai, A. H. Costa, and C. H. Chen, "Detection and Classification of Defects in Ultrasonic NDE Signals Using Time-Frequency Representations," in *Proceedings of Review of Progress in Quantitative NDE*, (Montreal, Quebec, Canada), pp. 717-724, July 1999. (Google Scholar: Cited by 1)
- H. Ketterer, F. Jondral, and A. H. Costa, "Classification of Modulation Modes Using Time-Frequency Methods," in *Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing*, (Phoenix, AZ), March 1999. (Google Scholar: Cited by 8)
- A. Ramasubramanian, K. Payton, and A. H. Costa, "A Comparison Between Conventional and Wavelet Based Amplitude Compression Schemes," in *Proceedings of the IEEE-SP International Symposium on Time-Frequency and Time-Scale Analysis*, (Pittsburgh, PA), pp. 161-164, October 1998.
- A. H. Costa and G. F. Boudreaux-Bartels, "Time-Frequency Representations With Multiform, Tiltable Chebyshev Kernels," in *Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing*, (Detroit, MI), pp. 1001-1004, May 1995.
- G. F. Boudreaux-Bartels and A. H. Costa, "Design of Zero-Phase, Multiform, Tiltable Two-Dimensional Filters," in *Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing*, (Detroit, MI), pp. 2603-2606, May 1995.
- A. H. Costa and G. F. Boudreaux-Bartels, "Design of Time-Frequency Representations Using Multiform, Tiltable Kernels," in *Proceedings of the IEEE-SP International Symposium on Time-Frequency and Time-Scale Analysis*, (Philadelphia, PA), pp. 205-208, October 1994. (Google Scholar: Cited by 3)
- A. H. Costa and G. F. Boudreaux-Bartels, "A Comparative Study of Alias-Free Time-Frequency Representations," in *Proceedings of the IEEE-SP International Symposium on Time-Frequency and Time-Scale Analysis*, (Philadelphia, PA), pp. 76-79, October 1994. (Google Scholar: Cited by 8)
- C. H. Chen and A. H. Costa, "New Results on Data Adaptive High Resolution Spectral Analysis Techniques," in *Proceedings of the IEEE International Conference on Systems, Man, and Cybernetics*, (Shenyang, China), August 1988.
- C. H. Chen and A. H. Costa, "An Interactive and Data Adaptive Spectrum Analysis System," in *Proceedings of the IEEE International Conference on Systems, Man, and Cybernetics*, (Atlanta, GA), October 1986.

Technical Reports

- A. H. Costa, "A Digital Image Processing Package for the IBM Personal Computer," *Technical Report SMU-ECE-TR-6*, Department of Electrical and Computer Engineering, University of Massachusetts Dartmouth, North Dartmouth, MA, June 1985.
- C. H. Chen and A. H. Costa, "Implementation of an Improved Fougere's Method for Maximum Entropy Spectral Analysis on an IBM Personal Computer," in *Proceedings of the IEEE Digital Signal Processing Workshop*, (Chatham, MA), October 1984.

REFERENCES

Available upon request.