AGNIESZKA MIGUEL

7418 Corliss Ave N ⋄ Seattle, WA 98103

425-736-0511 ⋄ amiguel@seattleu.edu

EDUCATION

Ph.D. Electrical Engineering Dec. 2011
University of Washington, Seattle, WA.
Dissertation: "Image Compression Using Overcomplete Wavelet
Representations for Multiple Description Coding."

M.S. Electrical Engineering Dec. 1996
Florida Atlantic University, Boca Raton, FL.
Thesis: "Multiresolution Analysis of Glottal Pulses."

B.S. Electrical Engineering, cum laude Dec. 1994
Florida Atlantic University, Boca Raton, FL.

ACADEMIC WORK EXPERIENCE

Seattle University, Seattle, WA
Department of Electrical and Computer Engineering
Associate Professor and Chair — Sept. 2011 - present
Assistant Professor — Sept. 2004 - Sept. 2011

University of Washington, Seattle, WA
Department of Electrical Engineering
Affiliate Associate Professor — Sept. 2011 - present
Affiliate Assistant Professor — Sept. 2004 - Sept. 2011
Instructor, Postdoctoral Research Associate — July 2003 - June 2004
Research Assistant — Jan. 1997 - Dec. 2001

Colorado State University, Fort Collins, CO
Department of Electrical and Computer Engineering
Affiliate Faculty — Sept. 2017 – present

Florida Atlantic University, Seattle, WA
Department of Electrical and Computer Engineering
Graduate Research Assistant — Jan. 1995 - Dec. 1996
Teaching Assistant, Undergraduate Research Assistant — Jan. 1993 - Dec. 1996

INDSUTRY WORK EXPERIENCE

Diagnostic Ultrasound Corp., Bothell, WA
Consultant — Jan. 2003 - March 2003
Researched compression methods for 3D ultrasound bladder scans.

Mapping Science Ultrasound Inc., Sammamish, WA
Consultant — Aug. 2002 – Feb. 2003
Software development for compression of large maps.

Honeywell Aerospace, Redmond, WA
Consultant — Jan. 2002 – May 2002
Evaluated image and video acquisition, compression, transmission, storage,
and display for airplane security video and flight information systems.

TEACHING EXPERIENCE

Courses

Computing for Engineers	WQ15, WQ13
Data Compression	WQ06, FQ07, FQ10
Digital Image Processing	SQ05, WQ07, FQ09, SQ12
Engineering Problem Solving with MATLAB	FQ06, FQ07, WQ09, WQ10, WQ11, WQ12. FQ12
Electrical Circuits I	WQ05, SQ06, WQ08, SQ08, WQ09, WQ10, WQ11, SQ11, WQ14
Electrical Circuits II	FQ04, SQ07, SQ09, SQ10
Introduction to MATLAB	WQ16
Linear System Analysis	FQ05, FQ06, WQ08, FQ10

Senior Design Projects: Faculty Advisor

Project Spot Check: Developing a Computer Vision-Based Program for Identifying Individual Leopards from Camera Trap Photographs(Panthera Corp.)	2018 – 2019
Project Spot Check: Developing a Computer Vision-Based Program for Identifying Individual Snow Leopards from Camera Trap Photographs (Panthera Corp.)	2017 – 2018
Business Intelligence for Smart Grid Energy Dashboard (City Intelligent Systems, Inc.)	2013 – 2014
Truck Noise Cancellation (Kenworth Truck Company)	2011 – 2012
Angst Warrior Art Installation (The Other Roadside Attraction Gallery)	2010 – 2011
Angst Warriors: Navigation System (The Other Roadside Attraction Gallery)	2009 – 2010
Artisan Sound Engine (Artisan Instruments, Inc.)	2008 – 2009
Starry Skies Ceiling Panels (The Boeing Company)	2007 – 2008
Persistent Digital Media (Philips Ultrasound Corporation)	2006 – 2007
GPU Based Image Processing: Realtime JPEG CODEC Feasibility Study (Philips Medical Systems)	2005 – 2006
Communication Over Power Lines (The Boeing Company)	2005 – 2006
Boeing Cabin Systems Passenger Area Wireless Network (The Boeing Company)	2004 – 2005

Senior Design Projects: Liaison Engineer

Project Spot Check: Developing a Computer Vision-Based Program for Identifying Individual Snow Leopards from Camera Trap Photographs	2016 – 2017

Undergraduate Research Projects

Project Spot Check: Developing a Computer Vision-Based Program for Identifying Individual Snow Leopards from Camera Trap Photographs Students: Sara Beery, Erica Flores, Loren Klemesrud, Joshua Beard, Chleo Bales-Heisterkamp, David Grob, Mirka Mandich	2013 – present
Compression of Wind Power Data Student: Shannon Hitchen	2010 – 2011
Signed Bit Representations Student: Tich Huy Nam	2007 – 2008
Near-Lossless Hyperspectral Image Compression Students: Jason Ashbach, Stephanie Wright	2007 – 2008
Compression of Mass Spectrometry Data Student: Martin Kearney-Fischer	2006 – 2007
Image Set Compression Students: Eric Rust, John Halloran, Min Kyeong Lee, Joseph McIntosh	2005 – 2008, 2012

AWARDS AND FELLOWSHIPS

Capacity Building Workshop for Competitive NSF S-STEM Proposals]   2018
George R. Brown School of Engineering at Rice University
Selected as one of 40 participants.

Francis P. Wood Chair in Electrical and Computer Engineering   2015 – 2017
Seattle University, Department of Electrical and Computer Engineering
Awarded every two years to support faculty member's scholarly activities

Dean's Award   2016
College of Science and Engineering, Seattle University
Awarded every year to a faculty member to recognize leadership and commitment to excellence

ECE Meritorious Service Award   2016
Awarded by the American Society for Engineering Education (ASEE) Electrical and Computer
Engineering (ECE) Division to recognize meritorious service to the division and profession

SU Center for Environmental Justice and Sustainability Mentor   2015 – 2016
Orientation Invariant Autonomous Recognition of Individual Snow Leopards
Student: Sara Beery

SU Center for Environmental Justice and Sustainability Fellow   2014 – 2015
Snow Leopard Identification Using Digital Image Processing

Clare Boothe Luce Scholarship Mentor Award   2012 – 2014
Sorting of Camera Trap Images Using Digital Image Processing and Machine Learning
Student: Erica Flores

Outstanding Teacher Award   2013
Seattle University, College of Science and Engineering

Seattle University Summer Faculty Fellowship   2013
Identification of Snow Leopard Pictures Using Digital Image Processing

Outstanding Zone Campus Representative   2012
American Society for Engineering Education, Zone IV

Seattle University Summer Faculty Fellowship   2005
Image Set Compression

GRANTS

Boeing Corp.   2017 – 2021
Improving the Persistence of Women and Underrepresented Minority Students
in Seattle University's Undergraduate Engineering and Computer Science Programs.
$250,000, role: Project Director

W. M. Keck Foundation Undergraduate Education Program   2017 – 2019
Development of an Internet of Things (IoT) based Innovation Lab
$250,000, role: co-PI

NSF ADVANCE Institutional Transformation Grant   2016 – 2021
What Counts as Success? Recognizing and Rewarding Women Faculty's Differential
Contributions in a Comprehensive Liberal Arts University
$2.3 million, role: one of six SU faculty coordinators

NSF S-STEM: SU ECE Scholars   2013 – 2018
$611, 412, role: PI

Consortium to Promote Reflection in Engineering Education (CPREE)   2014 – 2016
subcontract from the University of Washington, role: faculty representative

PEER-REVIEWED JOURNAL ARTICLES

H. Louie and A. Miguel, "Lossless Compression of Wind Plant Data." *IEEE Transactions on Sustainable Energy*, vol. 3, no. 3, pp. 598-606, Jul. 2012.

A. Miguel, E. Riskin, R. Ladner, and D. Barney, "Near-Lossless and Lossy Hyperspectral Image Compression: Comparison of Rate-Distortion and Image Processing Performance." *Signal, Image, and Video Processing*, Springer, London, November 2010, pp. 1-15.

PEER-REVIEWED CONFERENCE ARTICLES

David Grob, Mehmet Vurkaç, Agnieszka Miguel, Mirka Mandich, Rana Bayrakçismith, "Pareto Optimization of Parameter Selection Speeds Up and Improves Quality of Motion Computation: Applying Evolutionary Multi-Objective Optimization to Randomized-Subspace Robust PCA," *The 6th International Workshop on Data Science and Big Data Analytics, in conjuction with the IEEE International Conference on Data Mining*, Singapore, November 2018.

Agnieszka Miguel, Joshua S. Beard, Chleo Bales-Heisterkamp, and Rana Bayrakcismith, "Sorting Camera Trap Images," *The 10th International Conference on Signal Processing Systems*, Singapore, November 2018.

A. Miguel, "ECE Scholars: NSF S-STEM Grant," *2018 ASEE Annual Conference & Exposition*, Salt Lake City, UT, June 2018.

N. Mariano, A. Miguel, M. Rempe, J. M. Sloughter, "Quantitative Analysis of Barriers to Completion of Engineering Degrees for Female-Identifying and Under-Represented Minority Students," *2018 CoNECD - The Collaborative Network for Engineering and Computing Diversity Conference*, Crystal City, VA, April – May, 2018.

A. Miguel, J. Beard, C. Bales-Heisterkamp, and R. Bayrakcismith, "Sorting Camera Trap Images," *2017 IEEE Global Conference on Signal and Information Processing (GlobalSIP)*, Montreal, Canada, November 2017.

A. Miguel and S. Abraham, "Creating an Environment for Transfer Student Success," *2017 ASEE Annual Conference & Exposition*, Columbus, OH, June 2017.

S. Abraham and A. Miguel, "Creation of an Internet of Things (IoT)-Based Innovation Lab," *2017 ASEE Annual Conference & Exposition*, Columbus, OH, June 2017.

A. Miguel, S. Beery, E. Flores, L. Klemesrud, and R. Bayrakcismith, "Finding Areas of Motion in Camera Trap Images," *2016 IEEE International Conference on Image Processing (ICIP)*, Phoenix, AZ, September 2016.

H. Louie, S. Szablya, and A. Miguel, "Student Design of a Sustainable Microgrid for Rural Kenya," *2015 ASEE Annual Conference & Exposition*, Seattle, WA, June 2015.

A.C. Miguel, "Impact of near-lossless and lossy coding on information extraction from hyperspectral data." *Proceedings of the Visual Information Processing and Communication Conference, part of IS&T/SPIE Electronic Imaging*, San Francisco, CA, Jan. 2011.

A. Miguel, "Preventing And Managing Classroom Incivilities", *2009 ASEE Annual Conference & Exposition*, Austin, TX, June 2009.

E. Larson and A. Miguel, "Performing Engineering Research At Non Ph.D. Granting Institutions," *2007 ASEE Annual Conference & Exposition*, Honolulu, HI, June 2007.

A.C. Miguel, M. Kearney-Fischer, J.F. Keane, J. Whiteaker, Li-Chia Feng, and A. Paulovich, "Near-Lossless Compression of Mass Spectra for Proteomics." *Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing*, Honolulu, HI, vol. I, pp. 369-372, Apr. 2007.

A.C. Miguel, J. Liu, D. Barney, R. Ladner, E. Riskin, "Near-lossless compression of hy- perspectral images." *Proceedings of the 2006 IEEE International Conference on Image Processing*, Atlanta, GA, pp. 1153-1156, Oct. 2006.

A.C. Miguel, J.F. Keane, J. Whiteaker, H. Zhang, and A. Paulovich, "Compression of LC/MS Proteomic Data." *Proceedings of the 19th IEEE International Symposium on Computer-Based Medical Systems*, Salt Lake City, UT, pp. 925-930, June 2006.

E. Larson and A. Miguel, "Efficient And Effective Grading Of Student Work," *2006 ASEE Annual Conference & Exposition*, Chicago, IL, June 2006.

A. Miguel, "A Hands On, Interactive Undergraduate Digital Image Processing Course," *2006 ASEE Annual Conference & Exposition*, Chicago, IL, June 2006.

A.C. Miguel, A.R. Askew, A. Chang, S. Hauck, R.E. Ladner, and E.A. Riskin, "Reduced Complexity Wavelet-Based Predictive Coding of Hyperspectral Images for FPGA Im- plementation." *Proceedings of the IEEE Data Compression Conference*, Snowbird, UT, pp. 469-478, Mar. 2004.

T. Wu, A.C. Miguel, S. Hauck, E. Riskin, R. Ladner, "Protecting Region of Inter- est in Medical Images in a Lossy Packet Network." *Proceedings of the Society of Photo-Optical Instrumentation Engineers Conference on Medical Imaging, PACS and Integrated Medical Information Systems: Design and Evaluation*, San Diego, CA, Vol. 4685, pp. 137-148, Feb. 2001.

A.C. Miguel, A.E. Mohr, and E.A. Riskin, "SPIHT for Generalized Multiple Description Coding." *Proceedings of the IEEE International Conference on Image Processing*, Kobe, Japan, vol.3, pp. 842-846, Oct. 1999.

INVITED BOOK CHAPTER

A.C. Miguel, R. E. Ladner, E.A. Riskin, S. Hauck, D.K. Barney, A.R. Askew, and A. Chang, "Predictive Coding of Hyperspectral Images." in *Hyperspectral Data Compression*, Edited by G. Motta, F. Rizzo, and J.A. Storer. Springer Science+Business Media, Inc., N.Y., USA. Chapter 8, pp. 197-232, 2005.

SERVICE AND LEADERSHIP

University and College

Academic Assembly	2016 – present
University Leadership Council	2015 – present
College of Science and Engineering Strategic Planning Committee	2016 – 2017
College of Science and Engineering Curriculum Committee	2010 – 2014
Seattle University Provost Search Committee	2006 – 2007
Society of Women Engineers Student Chapter Faculty Advisor	2005 – present

Professional Association Administrative Positions

American Society for Engineering Education (ASEE):

ASEE Board of Directors, Executive Committee	2017 – 2018
ASEE Board of Directors	2016 – present
ASEE Professional Interest Councils, Vice President	2017 – present
ASEE Professional Interest Council I, Chair	2016 – present
ASEE Pacific Northwest Section, Awards Chair	2017 – present
ASEE Pacific Northwest Section, Chair	2015 – 2017
ASEE Pacific Northwest Section, Chair Elect	2013 – 2014
ASEE Pacific Northwest Section, Secretary/Treasurer	2009 – 2013
ASEE Electrical and Computer Engineering Division, Chair	2012 – 2013
ASEE Electrical and Computer Engineering Division, Program Chair	2011 – 2012
ASEE New Engineering Educators Division, Chair	2011 – 2012
ASEE New Engineering Educators Division, Program Chair	2011 – 2010
ASEE New Engineering Educators Division, Treasurer	2008 – 2009
ASEE New Engineering Educators Division, Secretary	2007 – 2008
ASEE Campus Representative	2009 – 2016

Electrical and Computer Engineering Department Heads Association (ECEDHA):

ECEDHA Board of Directors, member-at-large	2016 – present
ECEDHA Foundation Board of Directors	2016 – present
ECEDHA Annual Conference Program Committee	2013 – present

| ECEDHA Source Editorial Board | 2015 – 2017 |
| ECEDHA Awards Committee | 2012 – 2013 |

Reviewer Activities

IEEE International Conference on Image Processing (ICIP)	2001 – 2015
IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)	2001 – 2015
Geoscience and Remote Sensing Letters, IEEE Transactions on Medical Imaging,	2001 – 2011
IEEE Signal Processing Letters, EURASIP Journal on Applied Signal Processing,	2001 – 2011
IEEE Data Compression Conference (DCC)	2001 – 2011

PROFESSIONAL ASSOCIATION MEMBERSHIPS

Institute of Electrical and Electronic Engineers (IEEE)
IEEE Signal Processing Society
IEEE Women in Engineering
IEEE-HKN Honor Society
American Society for Engineering Education (ASEE)
Society of Women Engineers (SWE)
Women in Engineering ProActive Network (WEPAN)