

Kenneth John Faller II

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Education

Ph.D., Electrical Engineering, Florida International University (FIU), 2009
M.S., Computer Engineering, Florida International University (FIU), 2006
B.S., Computer Engineering, Florida International University (FIU), 2003

Academic Appointments

Professor	Aug 2022-Present
Electrical and Computer Engineering (ECE) Department	
California State University, Fullerton (CSUF)	Fullerton, CA
Associate Professor	Aug 2017-Aug 2022
Computer Engineering Program	
California State University, Fullerton (CSUF)	Fullerton, CA
Assistant Professor	July 2011-Aug 2017
Computer Engineering Program	
California State University, Fullerton (CSUF)	Fullerton, CA

Previous Research Appointments

Postdoctoral Researcher	June 2009-July 2011
Structural Acoustics Branch	
NASA Langley Research Center (LaRC)	Hampton, VA
Graduate Research Assistant	Jan 2005-June 2009
Digital Signal Processing (DSP) Laboratory	
Florida International University (FIU)	Miami, FL

Centers

Co-Director	Aug 2017-May 2024
Center for Collaborative Research and Prototype Development (CCRPD)	
California State University, Fullerton (CSUF)	Fullerton, CA

Professional Affiliations

- Member, Institute of Electrical and Electronics Engineers (IEEE)

Honors and Awards

- California State University, Fullerton (CSUF) Office of Research and Sponsored Projects (OSRP) 2021 Faculty/Staff PI Recognition

- California State University, Fullerton (CSUF) 2020 Recognition of Outstanding Achievements in Service
- California State University, Fullerton (CSUF) 2016 Recognition of Outstanding Achievements in Research
- California State University, Fullerton (CSUF) 2015 Recognition of Outstanding Achievements in Service
- California State University, Fullerton (CSUF) 2015 Outstanding Titan Advisor Award
- California State University, Fullerton (CSUF) 2014 Recognition of Outstanding Achievements in Teaching

Professional Development

CSUF Academic Advisors' Professional Development Conference
California State University, Fullerton (CSUF)

April 26, 2016
Fullerton, CA

Teaching

EGGN-100: Intro to Engineering	EGEC-463: Current Topics in Computer Engineering
EGEC-280: Microcontrollers	EGEC-470: Multidisciplinary Projects in Comp. Engineering – I
EGEC-281: Designing with VHDL	EGEC-485: Electrical Engineering Design Projects Laboratory
EGEC-381: Computer Design and Organization	EGEC-520: Advanced Computer Architecture
EGEC-406: Design Applications with Microcontroller and FPGA	EGEC-541: Mixed-Signal IC Design
EGEC-447: Introduction to Hardware Security	EGEC-548: Real-Time Audio and Language Processing ¹
EGEC-450: Embedded Processor Interfacing	

Scholarly and Creative Activities

Extramural Grant Proposals

University of West Florida - Subaward
Award #: 50-1791-20

Oct 2020 - Sept 2021

Proposal Title: "CNC Machine Tool Controls Integrity Verification - Supplemental," As Co-Principal Investigator (Co-PI), \$39,874

University of West Florida - Subaward
Award #: 50-1727-20

Feb 2020 - Sept 2020

Proposal Title: "CNC Machine Tool Controls Integrity Verification," As Co-PI, \$86,984

University of West Florida - Subaward
Award #: 50-1651-19

Jan 2019 - Dec 2019

Proposal Title: "CNC Machine Tool Controls Integrity Verification," As Co-PI, \$99,509

¹ I proposed and developed this course

Research Fellowship

Department of Homeland (DHS) Summer Research Team
The University of Arizona - National Center for Border Security and Immigration (NCBSI) Summer 2013
Tucson, AZ

Intermural Grants

CSU STEM-NET Faculty Education SEED Grant June 2021 - May 2022
Proposal Title: "Improving STEM Teaching through Active-learning Tools that promote Inquiry-based Comprehension in Statics (iSTATICS)," As Co-PI, \$39,947

CSU Support Programs for First-Time CSU Students June 2021 - May 2022
Proposal Title: "Tuffy Advising Tool," As Co-PI, \$50,000

CSU Support Programs for First-Time CSU Students June 2021 - May 2022
Proposal Title: "Titan Tracks: A Collaborative Innovation in Degree Planning and Student Success," As Co-PI, \$50,000

Milton A. Gordon (MAG) Fund for Scholarly and Creative Activities Spring 2012
Proposal Title: "Estimation of Anthropometric Measurements of the Human Pinnae using Image Processing Techniques," 1 Semester Course Release

Gifts-In-Kind Received

- Donation of 20 Texas Instruments (TI) TMS320C6713 DSP Starter Kit (DSK) – Fall 2015 (Approximate Value: \$7900)

Publications

Journal

1. J. Piacenza, S. Piacenza, T. Siegfried, N. Robinson, and K. Faller II, "Design and Fabrication of a Stereo-Video Camera Equipped Unoccupied Aerial Vehicle for Measuring Sea Turtles, Sharks, and Other Marine Fauna," PLOS, 2021 [Impact Factor: 7.076]
2. B. Taylor, C. Charbonneau, C. Kehl, R. Joseph, S. Piacenza, and K. Faller II, "Energetic Analysis of Tagged Sea Turtles Using Geomagnetic Navigation," Journal of Navigation, 2021 [Impact Factor: 1.908]
3. D. Connell, C. Kehl, B. Taylor, J. Piacenza, S. Piacenza, and K. Faller II, "A Computational Framework for Studying Energetics and Resource Management in Sea Turtle Migration and Autonomous Systems," J. Theor. Biol., 2021, <https://doi.org/10.1016/j.jtbi.2021.110815>, [Impact Factor: 2.327]
4. J. Piacenza, K. Faller II, B. Regez, and L. Gomez, "Verification of Numerically Controlled Manufacturing Processes to Help Mitigate Cyber-Physical Threats," ASME Journal of Manufacturing Science and Engineering, 2021, <https://doi.org/10.1115/1.4050547>, [Impact Factor: 2.875]

5. J. Piacenza, K. Faller II, M. Bozorgirad, E. Cotilla-Sanchez, C. Hoyle, and I. Tumer, "Understanding the Impact of Decision Making on Robustness during Complex System Design," *ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, Part B: Mechanical Engineering*, 2019, <https://doi.org/10.1115/1.4044471>, [Impact Factor: 1.54]
6. K. Faller II, C. Nguyen, and A. Barreto, "A Hands-on Approach to Binaural Spatial Audio Education," *ASEE Computers in Education Journal*, vol. 6, no. 2, pp. 90–99, 2015, [Impact Factor: 0.2]

Technical Report

1. K. Faller II, S. A. Rizzi, and A. Aumann, "Acoustic Performance of a Real-Time Three-Dimensional Sound-Reproduction System," *NASA Technical Report*, Hampton, VA, 2013, <https://ntrs.nasa.gov/citations/20130013985>

Conference Proceedings

1. A. Desoto, E. Santos, F. Liri, K. Faller II, D. Heng, J. Dodd, K. George, and J. Droulin, "Predicting Audio Training Learning Outcomes Using EEG Data and KNN Modeling," in *IEEE World AI IoT Congress (AllIoT)*, 2022.
2. F. Liri, A. Desoto, W. Catalan, K. George, K. Faller II, and J. Droulin, "Monitoring Audio Training Learning Outcomes with EEG Data," in *IEEE 12th Annual Computing and Communication Workshop and Conference (CCWC)*, 2022.
3. C. Provost, A. Sigler, and K. Faller II, "Spectral Analysis and Correlation of Power Signatures for SHA-256 Encryption Keys," in *National Conference on Undergraduate Research (NCUR)*, 2021.
4. J. Piacenza, K. Faller II, B. Regez, and L. Gomez, "Investigating Cyber-Physical Threats of Numerically Controlled Manufacturing Processes," in *ASME International Design Engineering Technical Conferences and Computers and Information in Engineering Conference (IDETC)*, 2020, <https://doi.org/10.1115/DETC2020-22324>
5. K. Faller II, J. Riddley, and E. Grubbs, "Automatic Blind Source Separation of Speech Sources in an Auditory Scene," in *51st IEEE Asilomar Conference on Signals, Systems, and Computers (ACSSC)*, 2017, [Impact Factor: 1.04]
6. V. Ahir, N. Robson, K. Faller II, et al., "Development of a Virtual Reality Environment for Upper Limb Rehabilitation for Post-Stroke Patients," in *29th CSU Annual Biotechnology Symposium*, 2017.
7. K. Faller II and L. Sirigiri, "A Project-Based Approach to Embedded Security Education," *Int. J. Engg. Sc. Mgmt.*, vol. 6, no. 2, 2016.
8. K. Faller II, R. Jung, and O. Meza, "Silent Music: The Expression of Music through Touch," *Int. J. Engg. Sc. Mgmt.*, vol. 6, no. 1, pp. 1–6, 2016.
9. K. Faller II, S. A. Rizzi, and A. Aumann, "A Real-Time Simulation Environment for use in Psychoacoustic Studies of Aircraft Community Noise," in *Audio Engineering Society (AES) Convention 141*, 2016, <http://www.aes.org/e-lib/browse.cfm?elib=18400>, [Impact Factor: 0.79]

10. K. Faller II, G. Kinum, and A. Elkins, "Automatic Filled-Pause Detection Based on Prosodic Vocal Features," in *Proceedings of the 47th Annual Hawaii International Conference on System Sciences (HICSS)*, 2014.
11. G. Kinum and K. J. Faller II, "Vocal Feature Extraction in Environments with Extraneous Sounds," in *Southern California Conference for Undergraduate Research (SCCUR)*, 2013.
12. K. Faller II and K. Hoang, "Estimation of Parameters of a Head-Related Transfer Function Customization Model," in *Proceedings of Meetings on Acoustics (POMA)*, 2012, vol. 18.
13. K. Hoang and K. Faller II, "Estimation of Human Pinnae Measurements through Computer Vision," in *Southern California Conference for Undergraduate Research (SCCUR)*, 2012.

Publications Prior to Joining CSUF (Peer-Reviewed)

Journals

1. K. Faller II, A. Barreto, and M. Adjouadi, "Augmented Hankel Total Least-Squares Decomposition of Head-Related Transfer Functions," *Journal of the Audio Engineering Society (JAES)*, vol. 58, No. 1/2, pp. 3-21, January 2010.
2. K. Faller II and A. Barreto, "A New Inverse Processing Approach to the Modeling of Head-Related Transfer Functions for Audio Spatialization," *Journal of Inverse Problems in Science and Engineering (IPSE)*, vol. 17, pp. 51-63, 2009.
3. Y. Gao, A. Barreto, K. Faller II, and M. Adjouadi, "System Identification for the Contribution of the Light Variations to Pupil Diameter Change," *Biomedical Sciences Instrumentation*, vol. 44, pp. 389-403, 2008.
4. K. Faller II and A. Barreto, "Simulation and Real-Time Implementation for Teaching 3D Sound," *Computers in Education Journal*, vol. XVI, pp. 36-43, 2006.

Book Chapters

1. K. Faller II, A. Barreto, and M. Adjouadi, "Decomposition of Head-Related Transfer Functions into Multiple Damped and Delayed Sinusoids," in *Advanced Techniques in Computing Sciences and Software Engineering*, K. Elleithy, Ed. Netherlands: Springer, 2010, ISBN: 978-90-481-3659-9, pp. 273-278.
2. K. Faller II, A. Barreto, and N. Rishe, "Modeling of Head-Related Transfer Functions Through Parallel Adaptive Filters," in *Innovations and Advanced Techniques in Systems, Computing Sciences, and Software Engineering*, K. Elleithy, Ed. Netherlands: Springer, 2008, ISBN: 978-1-4020-8734-9, pp. 299-304.
3. K. Faller II, A. Barreto, N. Gupta, and N. Rishe, "Decomposition of Head-Related Impulse Responses by Selection of Conjugate Pole Pairs," in *Advances in Systems, Computing Sciences and Software Engineering*, K. Elleithy, Ed. Netherlands: Springer, 2007, ISBN: 978-1-4020-6263-6, pp. 259-264.

4. K. Faller II, A. Barreto, N. Gupta, and N. Rishe, "Performance Comparison of Two Identification Methods for Analysis of Head-Related Impulse Responses," in *Advances in Systems, Computing Sciences and Software Engineering*, T. Sobh and K. Elleithy, Eds. Netherlands: Springer, 2006, ISBN: 978-1-4020-5262-0, pp. 131-136.

Conference Proceedings

1. K. J. Faller II, S. A. Rizzi, N. Schiller, R. Cabell, J. Klos, W. L. Chapin, and A. R. Aumann, "Acoustic Performance of an Installed Real-Time Three-Dimensional Audio System," in the *Proceedings of Meetings on Acoustics (POMA)*, vol. 11, No. 1, March 2011.
2. K. J. Faller II, S. A. Rizzi, J. Klos, W. L. Chapin, F. Surucu, and A. R. Aumann, "Acoustic Calibration of the Exterior Effects Room at the NASA Langley Research Center," in the *Proceedings of Meetings on Acoustics (POMA)*, vol. 9, No. 1, August 2010.
3. K. Faller II, A. Barreto, and M. Adjouadi, "Decomposition of Head-Related Transfer Functions Based on the Hankel Total Least Squares Method," in the *13th IEEE DSP Workshop and 5th SPE Workshop Proceedings*, Marco Island, FL, Jan 4-7, 2009, pp. 161-166.