

# ANDREW B. WILLIAMS

## EDUCATION

University of Kansas, Ph.D., Electrical Engineering (Emphasis in Artificial Intelligence), 1999

Rockhurst University, M.B.A., 2019

Marquette University, M.S., Electrical and Computer Engineering, 1995

University of Kansas, B.S., Electrical Engineering, 1988

### *Professional Education*

MIT Professional Education, Applied Agentic AI for Organizational Transformation, 2025 - 2026

MIT Professional Education, Applied Generative AI for Digital Transformation, 2024 – 2025

NVIDIA Building Agentic AI Applications with LLMs, 2026

Stanford University, Continuing Studies Program, Introduction to Machine Learning I & II, 2023

Generative AI with Large Language Models, Certificate, DeepLearning.AI and AWS, 2023

George Blumenthal Breakfast Mentoring Program, The University of California, Berkeley, Center for Studies in Higher Education, 2022

National Association of Diversity Officers in Higher Education, Standards of Professional Practice Institute, Cohort Participant, 2020-2021

Amazon Web Services Cloud Practitioner, 2020-2022

Yale School of Management, Certificate in Fostering Inclusion and Diversity, 2019

Teaching and Learning Studio [Design Thinking], Stanford University, d.school, 2017

Senior Administrative Fellow, University of Kansas, 2017-2018

## SUMMARY OF ADMINISTRATIVE EXPERIENCE

Assistant Provost for Innovation and Entrepreneurship, Office of the Provost, The Citadel Military College of South Carolina, Charleston, SC, 2026-present

Dean of Engineering and Louis S. LeTellier Chair, Acting Director, Center for AI, Algorithmic Integrity, and Autonomy Innovation (AI3), The Citadel Military College of South Carolina, Charleston, SC, 2021-2026

Associate Dean, School of Engineering, University of Kansas, Lawrence, 2017-2021

Department Chair, Computer and Information Sciences, Spelman College, Atlanta, GA, 2010-2012

## SUMMARY OF ACADEMIC POSITIONS

Professor with Tenure, Electrical and Computer Engineering, The Citadel, 2021-present

Charles E. and Mary Jane Spahr Professor with Tenure, University of Kansas, Lawrence, 2017-2021

John P. Raynor Distinguished Chair, Marquette University, Milwaukee, 2012-2016

Director, Humanoid Engineering and Intelligent Robotics (HEIR) Lab, Marquette University, Milwaukee, 2012-2016

Professor with Tenure, Electrical and Computer Engineering, Marquette University, Milwaukee, 2012-2017

Associate Professor with Tenure, Spelman College, Atlanta, GA, 2005-2012

Assistant Professor, Spelman College, Atlanta, GA, 2004-2005

Assistant Professor, University of Iowa, Iowa City, 1999-2004

## **SUMMARY OF PROFESSIONAL EXPERIENCE**

Boeing Welliver Faculty Fellow, Boeing, Seattle, Washington, 2010

Senior Engineering Diversity Manager, Apple Inc., 2008-2009

Software Systems Engineering / Edison Engineer, GE Medical Systems, 1992-1995

Graduate Research Assistant, University of Kansas, Lawrence, 1991

Purchased Material Quality Engineer, Allied Signal Aerospace Company, 1988-1990

## **THE CITADEL, SCHOOL OF ENGINEERING**

2021-Present

### **Dean of Engineering & Louis S. LeTellier Chair Colonel, SCM**

Carnegie Classification: Master's Colleges & Universities: Larger Programs. Senior Military College. Number one public college in the South according to U.S. News ranking. Undergraduate student population approximately 2700. School of Engineering student population, approx. 500. Lead fifth oldest and top 20 undergraduate engineering program according to U.S. News Ranking for non-doctoral institutions. Participated in financial oversight of overall The Citadel budget (approx. \$120M) as voting member of the Fiscal Review Board.

### **Major Accomplishments:**

#### *Academic Initiatives:*

- Increased National Top 20 Academic Ranking: U.S. News and World Report #14 among non-doctoral undergraduate engineering programs.
- Leading implementation of 5-year School of Engineering (SoE) Strategic Plan with stakeholders including faculty, School leadership, staff, students, alumni, and external partners.
- Developed First Year Engineering Experience, BIIG DOGS (Belonging, Innovation Instruction Groups Designed for On-time Graduation Success) to increase first-year engineering retention and received sponsorship from Hytrol; the common first-year course incorporates KEEN-supported entrepreneurial mindset activities and served 116 first-year engineering students in its third year.
- Oversaw the ABET accreditation for new Computer Engineering program.

- Strengthening collaboration with Trident Technical Community College in 2+2 evening engineering program with faculty residence project.
- Collaborated with Clemson University to develop new MOU for a 4+1 master's program in biomedical, automotive, and industrial engineering.
- Assist in providing The Citadel strategic oversight through financial reviews, planning, and recommendations to the President as voting member of the Fiscal Review Board (approx. \$120M budget).
- Collaborating with architects to design new 120,000 square foot Engineering Replacement Building and involving faculty and key stakeholders in design.
- Developing community partnerships and STEM engagement activities through NSF-funded Humanoids + Healthcare middle school camp, Introduce a Girl to Engineering, and Engineers Week.

*Development:*

- Secured \$83.6 million for a new engineering building with funding from the South Carolina State Legislature, private donations, and pledges.
- Received \$1.0 million for new Center for AI, Algorithmic Integrity, and Autonomy Innovation (AI3) sub-award for \$20M, five-year NSF EPSCoR AI-Enabled Devices for the Advancement of Personalized and Transformative Healthcare, or ADAPT in South Carolina project. Award advances research, workforce development, and broadening participation in engineering.
- Secured \$3.5M for the naming of the Emmett I. Davis, Jr., Civil, Environmental, and Construction Engineering Department.
- Secured \$1.0M endowment for the Mr. James O. Rigney, Jr., '74, Professorship of Electrical Engineering.

*Entrepreneurial Strategic Initiatives:*

- Advocated for The Citadel School of Engineering to become a Kern Entrepreneurial Engineering Network (KEEN) Partner Campus, one of approximately 70 KEEN institutions nationally and the only KEEN Partner Campus in South Carolina, and secured \$250K in total support from the Kern Family Foundation (\$125K cash and \$125K in-kind, at \$50K per year) plus faculty development over five years, 2022–2027.

- Led integration of Entrepreneurial Mindset Learning (EML) into the engineering curriculum, reaching 390+ undergraduate engineering students through EML-infused courses taught by seven faculty members.
- Extended EML faculty development beyond engineering to the wider campus, with 42 faculty engaged or trained through collaboration with the Center for Excellence and Innovation in Teaching and Learning (CEITL), and campus-wide EML workshops, book clubs, and visiting KEEN speakers open to all Citadel faculty.
- Mentored and supported four faculty who earned national recognition as Engineering Unleashed (KEEN) Fellows: Simon Ghanat, Mostafa Batouli, Deirdre Ragan, and Dimitra Michalaka, each carrying a \$10K one-year award.
- Co-led Provost task force to enhance graduate and online programs across The Citadel.

#### *Government Relations / Board Relations:*

- Worked with lobbyist to get \$3.55M in research and education funding approved from Congressional budget (prior to budget change) and new request of \$8.5M
- Oversee School of Engineering Executive Advisory Board, consisting of current and former CEOs, engineers, and business leaders
- Worked to oversee and improve academic programs as a Board of Trustees member on the Academic Affairs Committee, Milwaukee Institute of Art and Design

#### *Fostering Community*

- Developed SoE diversity plan with faculty and received American Society of Engineering Education (ASEE) Diversity Recognition Program Bronze Level designation, the second highest awarded to any institution.
- Recruited and hired diverse engineering faculty.
- Represented The Citadel School of Engineering nationally on the Academic Computing Machinery (ACM) Education Advisory Board's Diversity, Equity, and Inclusion Task Force
- Contributed as a member of the National Academy of Engineering (NAE) workshop planning committee for developing admissions policies and programs that promote diversity.
- Presented as panelist at NAE-ASEE "Weaving Students Into Engineering, Not Weeding Them Out" Conference.
- Collaborated with Claflin University, Prairie View A&M University, and APL Logistics to host IdeaThon and AI Workshop for Claflin Deans.

- Partnered with AWS to host company representatives and Citadel engineering students in an inaugural AI / Alexa Diversity recruitment event.
- Selected as keynote speaker for South Carolina Human Affairs 2024 EEO Forum on topic of AI, workforce development, and equity (forthcoming April 24).

*Selected Artificial Intelligence (AI) Leadership:*

- Founded and direct the Center for AI, Algorithmic Integrity, and Autonomy Innovation (AI<sup>3</sup>), a \$1M NSF subaward within the \$20M NSF EPSCoR ADAPT-SC project; leading statewide AI research, workforce development, and outreach in South Carolina.
- Designed the interdisciplinary AI/ML Strategic Plan, approved by the Board of Visitors, and incorporated into The Citadel's institutional strategic plan (2022).
- Leading initiative to establish AI graduation competency requirements, positioning The Citadel as the first Senior Military College with mandatory AI literacy for all incoming students.
- Created and organized the AI Action Plan Speaker Series (Fall 2025–present) featuring leaders from Stanford University, Ohio State University, BMW, Scientific Research Corporation, Carnegie Mellon, and author Jose Bowen (Teaching with AI).
- Facilitated faculty AI capacity-building through workshops, agentic AI seminars (The Citadel and Ohio Northern University), and AWS AI boot camps for cross-disciplinary faculty teams.
- Testified before the South Carolina House Committee on AI, Cybersecurity, and Cyber Crimes (January 2024) on the Impacts of AI on the South Carolina Workforce.
- Served on the AWS Machine Learning University Advisory Board for AI educator enablement across community colleges, minority-serving institutions, and primarily undergraduate institutions.
- Helped establish The Citadel's Generative AI Policy via Provost task force.
- Co-led AWS DeepRacer autonomous vehicle competition with West Point and U.S. Naval Academy.
- Developed three online AI/ML courses: Introduction to AI for Decision Makers, Application of Machine Learning, and Deep Learning with Text and Image Data.

**UNIVERSITY OF KANSAS**

2017-2021

**Associate Dean**

**Charles E. and Mary Jane Spahr Professor, Electrical Engineering & Computer Science**

Major Accomplishments:

- Developed School of Engineering strategic plan related to belonging and impact with stakeholders.
- Awarded Exemplar Status as inaugural ASEE Diversity Recognition Program awardee.
- Created IHAWKe to re-energized oldest minority engineering program in the country and to support the recruitment and retention of all students
- Led IHAWKe team to compete in National Academy of Engineering Grand Challenge Scholars Program competition.
- Collaborated with Haskell Indian Nations University on 2+2 Architectural Engineering program prototype.
- Partnered with Amazon Web Services (AWS) and Kiewit to host Design Thinking Competitions, or IHAWKe-a-Thon, around Beneficial Artificial Intelligence and Sustaining 10 Billion People.
- Worked with KU Endowment to successfully fundraise from donors and corporations to support newly developed KUEST (KU Engineering, Science, and Technology) outreach and summer bridge programs.
- Collaborated on University Wide Council and worked to improve faculty hiring.
- Mentored multiple engineering and computer science faculty members on broadening participation in engineering and computing plans for NSF grants including NSF CAREER awards.
- Integrated AI Ethics and AWS DeepRacer competitions into an Introduction to AI course.
- Led or collaborated on education and research grants related to belonging and impact, Science of Security for Cyber-physical Systems (National Security Agency, \$14M initial request), NSF NRT-HDR: Internet of Catalysis – Harnessing Data Science for Catalyst Design, \$3M).

**MARQUETTE UNIVERSITY, MILWAUKEE, WI**

2012-2017

**John P. Raynor Distinguished Chair  
Electrical and Computer Engineering  
College of Engineering**

- Directed Humanoid Engineering & Intelligent Robotics Lab to research human-robot interaction and STEM and healthcare applications of humanoid robots.
- Directed National Science Foundation (NSF) National Robotics Initiative grant to conduct research in collaboration with Arizona State University related to culturally responsive humanoid robotics education for underrepresented middle school girls.
- Led team of undergraduate and graduate research in designing and building teen-sized autonomous soccer playing robots (MU-L8) to successfully compete globally in RoboCup in 2014 (Brazil) and 2015 (China).
- Led NSF Innovation Corps (I-Corps) for Learning team in startup efforts for humanoid robots that can teach STEM.
- Designed and taught courses in Social Robot Design, Human-Robot Interaction, Machine Learning, Database Design, Introduction to Computer Hardware, and Mobile App Development.
- Designed and provided training for nonprofit executives for using lean startup and design thinking to generate new revenue in collaboration with the Bader Foundation.

## **SPELMAN COLLEGE, ATLANTA, GA**

2004-2012

**Department Chair** (2010-2012)

**Associate Professor with Tenure** (2005-2012)

**Assistant Professor** (2004-2005)

Appointed with credit toward tenure for prior service as Assistant Professor at the University of Iowa (1999-2004); promoted and tenured in 2005.

- Created, directed, led an NSF-funded Broadening Participation in Computing Alliance, Advancing Robotics Technology for Societal Impact (education, research, healthcare, entrepreneurship, the arts) with robotics researchers from schools including Georgia Tech, Brown University, Duke, Carnegie Mellon, University of Alabama as well as faculty and students from Spelman College, Hampton University, Norfolk State University, University of the District of Columbia, and Florida A&M University.
- Led department through SACS reaccreditation.
- Hired and mentored NSF CAREER awarded faculty member.
- Directed Humanoid Engineering Robotics lab and supervised undergraduate research in robotics.
- Received NSF Broadening Participation in Computing Demonstration Project award to conduct research and national outreach through the SpelBots robotics team.

- Founded and led the international RoboCup autonomous soccer robotics team, the Spelman College Robotics Team, also known as the SpelBots.
- Received robotics research and educational funding and support from Coca Cola, Apple, Google, Boeing, General Motors, and other corporate partners.

## **UNIVERSITY OF IOWA, IOWA CITY**

1999-2004

### **Assistant Professor**

- Principle investigator on National Institutes of Health National Eye Institute, Innovations in Biomedical Science and Technology Program grant project, “Multi-Agent Collaborations for AMD Subtype Classification.”
- Supervised and graduated Ph.D. students (Electrical and Computer Engineering, and Computer Science)
- Directed Artificial Intelligence and Robotics Lab and supervised Post-Doc, Ph.D., Master’s, and undergraduate students.
- Designed and taught Autonomous Agents and Multi-Agent Systems course.

## **SELECTED GRANTS AND FUNDING**

### **Funding and Grants Management Summary**

Managed and contributed to securing grants, gifts, and funding totaling approximately \$95 million from diverse sources, including:

- Private Donors
- Government Agencies: State of South Carolina, National Science Foundation (NSF), National Institutes of Health (NIH), NASA.
- Corporations and Foundations, including Google, Apple, Boeing, Coca-Cola, GE, Black and Veatch, Halliburton, Kiewit, J.E. Dunn Construction, APL Logistics, Amazon Web Services, Microsoft Research, Kern Family Foundation, ExxonMobil, Intel, HNTB, Matterport, and Terracon Foundation.

### **Externally-Funded Grants/Contracts/Gifts**

#### The Citadel

South Carolina State Legislature funding plus donations and pledges for new engineering building, \$83.6 Million (2022-2025).

NSF EPSCoR, Artificial Intelligence-Enabled Devices for the Advancement of Personalized and Transformative Health Care in South Carolina (ADAPT-SC), \$20M (\$1M subaward, PI: Williams), (2023-2028).



The Kern Family Foundation for Entrepreneurial Mindset Learning curriculum development, faculty development, and student engagement, \$250K total (\$125K cash, \$125K in-kind; \$50K per year) (2022–2027).

AWS for DeepRacer Autonomous Vehicle Competition, with The Citadel, West Point, and the U.S. Naval Academy, \$25K

APL Logistics for Ideathon scholarships \$4K (2022)

AWS for Diversity Event with Industry, \$500 in gifts to students (2021)

#### University of Kansas

Williams, A.B. IHAWKe Diversity and Women's Programs, ExxonMobil, \$5,000, 2020

Williams, A.B. IHAWKe Diversity and Women's Programs, Black & Veatch, \$4,000, 2020

Williams, A.B. IHAWKe Diversity and Women's Programs, HNTB, \$3,000, 2020

Williams, A.B. IHAWKe Diversity and Women's Programs, ONEOK, \$500, 2020

Williams, A.B. IHAWKe Diversity and Women's Programs, Matterport, \$11,000, 2020

Williams, A.B. IHAWKe Diversity and Women's Programs, Private Donor, \$10,000, 2020

Williams, A.B. IHAWKe Diversity and Women's Programs, Private Donor, \$50,000, 2020

Williams, A.B. IHAWKe Diversity and Women's Programs, Terracon Fnd., \$5,000, 2020

Williams, A.B. IHAWKe Diversity and Women's Programs, J.E. Dunn, \$6,500

Williams, A.B. IHAWKe Diversity and Women's Programs, Halliburton Fnd., \$25,000, 2020

Williams, A.B. "IHAWKe-a-Thon: Sustaining 10 Billion People and Radical AI", Kiewit Foundation, \$25,000, 2019.

Williams, A. B., "KUEST: Journey to Engineering at KU," Halliburton, \$66,000 (August 21, 2018 - August 20, 2020).

Williams, A. (Co-Principal), Alexander, W. (Principal), Atchley, P. (Co-Principal), Bardas, A. (Co-Principal), Beckage, N. (Co-Principal), Blunt, S. (Co-Principal), Frost, V. (Co-Principal), Komp, E. (Co-Principal), Kulkarni, P. (Co-Principal), Li, F. (Co-Principal), Luo, B. (Co-Principal), Morris, J. Garrett (Co-Principal), Staples, W. (Co-Principal), Sterbenz, J. (Co-Principal), Stiles, J. (Co-Principal), Symons, J. (Co-Principal), Vitevitch, M. (Co-Principal), Yun, H. (Co-Principal), "Science of Security for Cyber-physical Systems (SCpS)," National Security Agency, \$14,752,121, Funded

(October 1, 2017 - September 30, 2022) [Participated in initial grant writing but not individually funded].

Leonard, K. (Principal), Blakemore, J. (Co-Principal), Luo, B. (Co-Principal), Subramaniam, B. (Co-Principal), Williams, A. B. (Co-Principal), "NRT-HDR: Internet of Catalysis—Harnessing Data Science for Catalyst Design," National Science Foundation, \$2,999,996 (September 1, 2019 - August 30, 2024), Funded.

### Marquette University

Williams, A. (Principal), Scott, K. (Co-Principal), "National Robotics Initiative: Co-Robots for COMPUGIRLS - Culturally Responsive Robotics Education for Underrepresented Girls", National Science Foundation, \$500K, (2014-2016).

Williams, A. (Co-Principal), Scott, K. (Principal), "Humanoid Robotics and STEM Curriculum Development," Intel Foundation, Subcontract from Arizona State University, Humanoid Robotics and STEM Curriculum Development, Intel Foundation, \$40,000 with \$9041 to Marquette (2015 - 2016).

Williams, A. (Principal), "I-Corps: STEM Social Robotics," National Science Foundation, subcontract from University of Wisconsin-Milwaukee, \$2,400 (2016).

Williams, A. (Principal), "I-Corps: Humanoid Co-Robotics Curriculum and Kits for Girls and Boys," National Science Foundation, Innovation Corps for STEM Learning (I-Corps L), \$50,000 (2014 - 2016).

### Spelman College

Williams, A. (Co-Principal), Butler, J. (Principal), "ASPIRE: Advancing Spelman's Participation in Informatics Research and Education," NSF HBCU-UP Program, \$2,500,000 (2007-2014).

Williams, A. (Principal), "Design for Manufacturing and Assembly Information Flow," The Boeing Company, \$25,000 (2010).

Williams, A. (Principal), "ARTSI: Advancing Robotics Technology for Societal Impact," NSF Broadening Participation in Computing Program, \$563,027 (2007-2012).

Total alliance funding of over \$2 million with 7 Research I and 10 HBCU's and \$250,000 industry funding.

Williams, A. (Principal), "SpelBots Equipment Donations," Apple Inc, \$14,800 (2007 - 2010). iWork Software (10), laptops (4), iPods (4), and iMacs (6) in support of the SpelBots.

Williams, A. (Principal), "Robotics Research and Curriculum Development for Autonomous Robot Teams," The Boeing Company, \$76,000 (2006 - 2010).

Williams, A. (Principal), "SpelBots: Innovative Education and Research for Women Using Autonomous Mobile Robots," Google Faculty Research Awards, \$15,000 (2009).

Williams, A. (Principal), "SpelBots 2006 and 2007 RoboCup Research Team," General Electric, \$50,000 (2006 - 2007).

Williams, A. (Principal), "BPC-DP: C.A.R.E: Computer and Robotics Education for African American Students," National Science Foundation (NSF) Broadening Participation in Computing Program, \$489,690 (2006). Includes \$24K in REU funding.

Williams, A. (Principal), "SpelBots and Computer Science Department," Anonymous Donation, \$100,000 (2006).

Williams, A. (Principal), "Spelman College Center for Biomedical and Behavioral Research Award," National Center on Minority Health and Health Disparities, \$43,463 (2006).

Williams, A. (Principal), "Robotics Education for Spelman College Four-Legged RoboCup Team," NASA/ California Institute of Technology Jet Propulsion Lab, \$40,000 (2004 - 2006).

Williams, A. (Principal), "SpelBots 2005 RoboCup Research Team," Private Donation from Spelman College Board Member, \$25,000 (2005).

Williams, A. (Principal), "SpelBots 2005 RoboCup Research Team," The Coca-Cola Foundation, \$50,000 (2005).

Williams, A. (Principal), "Multi-Agent Team Task Allocation for a Human-Automation System," Principal Investigator, NASA Jet Propulsion Lab, \$10,000 (2004 - 2005).

Williams, A. (Principal), "Software Systems for Bioinformatics," Research Infrastructure in Minority Institutions Award (RIMI), National Center on Minority Health and Health Disparities, \$66,072 (2004 - 2005).

Williams, A. (Principal), "NRI: Co-Robots for CompuGirls: Culturally Responsive Robotics Education for Underrepresented Girls," National Science Foundation, National Robotics Initiative, \$500,000 (2014 - 2016).

Williams, A. (Principal), "Humanoid Robots at Marquette University," Indiegogo Crowdfunding Campaign, \$1,190 (2015).

Williams, A. (Principal), "Dell Tablets Donation," Dell, \$1,790 (2014).

Williams, A. (Principal), "Intel Galileo Donation," Intel, \$1,500 (2014).

Williams, A. (Principal), "Marquette's Humanoids for Healthier Kids," Indiegogo Crowdfunding Campaign, \$6,222 (2014).

Williams, A. (Principal), "SpelBots, African American Women Showcasing Robotics and Computer Science to Underrepresented K-12 Students Nationally," National Science Foundation, Broadening Participation in Computing Program, \$525,000 (2010 - 2013).

#### University of Iowa

Williams, A. (Principal), "Multi-Agent Collaboration for AMD Subtype Classification," NIH, National Eye Institute, Innovations in Biomedical Science and Technology (BISTI) Program, \$771,845 (2003 - 2006).

Williams, A. (Principal), "Digital Humans and Virtual Reality," US Army TACOM, "Multi-Agent Task Learning and Planning" project, \$41,500 (2003 - 2004).

Williams, A. (Principal), "Autonomous Agents using .NET Technology," Microsoft University Relations, Unrestricted gifts and software donations for research and education, \$350,000 (2001 - 2004).

Williams, A. (Principal), "A VHDL Design Browser," Program for Enhanced Design Experience (PEDE) Project, Rockwell Collins, \$3,615 (2001).

Williams, A. (Principal), "A Preliminary Investigation of Diverse Learning Styles in a Multi-Agent System," IIS0002364 National Science Foundation, \$17,944 (2000 - 2001).

#### **Internally-Funded Grants/Contracts**

#### University of Iowa

Williams, A. (Principal), "A Java-based Machine Learning Library for Intelligent Agent Research," Old Gold Summer Fellowship, University of Iowa, \$6,666, Submitted 2017.

Williams, A. (Principal), "Using Sony AIBO Robots to Teach Object-Oriented Programming," Innovations in Instructional Computing Award, University of Iowa, \$10,894 (2003).

Williams, A. (Principal), "An Internet-based Multi-Agent system for Disease Gene Mapping Research Discovery," CIFRE, University of Iowa, \$10,000 (2000).

Williams, A. (Principal), "Multi-Agent Cooperation using Lego Mindstorms laboratory project for Computer in Engineering," College of Engineering, University of Iowa, \$9,424 (2000).

#### **SELECTED PUBLICATIONS**

#### **Books and Chapters in Books**

Williams, A. B., & Gilbreath, E. (2009). *Out of the Box: Building Robots, Transforming Lives*. Chicago, IL: Institute for Black Family Development and Lift Every Voice Imprint, Moody Publishers.

Tsatsoulis, C., & Williams, A. B. (2000). Case-Based Reasoning Techniques and Applications. In C. T. Leondes (Ed.), *Knowledge Based Systems Techniques and Applications* (Vol. 3, pp. 807-837). Academic Press.

## **Journal Articles and Conference Proceedings**

Vesali, Nahid, Greenburg, D., Batouli, M., Singleton, E. & Williams, A. (2024). Artificial Intelligence and Machine Learning Applications in Engineering Project Management: Developing A Course Module. In *2024 ASEE Southeast Conference*.

Oruc, O., Singleton, E., Williams, A. B., & Skenes, K. (2025). A Systematic Teaching Method for Modeling, Simulation and Control of Quadrotor Uncrewed Aerial Vehicles. In *2025 ASEE Southeast Conference*.

Oruc, O., Singleton, E., Williams, A. B., & Skenes, K. (2025, March). Development Of a New Course: Control Design for Autonomous Vehicles Using a Quadcopter as The Learning Platform. In *2025 ASEE Southeast Conference*.

Ali, W., Williams, A.B. (2020). Evaluating the Effectiveness of Nonverbal Communication in Human-Robot Interaction, *15th ACM/IEEE International Conference on Human-Robot Interaction*, Cambridge, U.K.

Bechtel, M., Williams, A.B. (2020). DeepTaxi: Teaching an Autonomous Car with Social Scaffolding, *15th ACM/IEEE International Conference on Human-Robot Interaction*, Cambridge, U.K.

Chen, X., Williams, A.B. (2020). Improving Engagement by Letting Social Robots Learn and Call Your Name, *15th ACM/IEEE International Conference on Human-Robot Interaction*, Cambridge, U.K.

Moore, R., Williams, A.B. (2020). AIDA: Using Social Scaffolding to Assist Workers with Intellectual and Developmental Disabilities, *15th ACM/IEEE International Conference on Human-Robot Interaction*, Cambridge, U.K.

Wu, Z., Williams, A. B., & Perouli, D. (2019). Dependable Public Ledger for Policy Compliance, a Blockchain Based Approach. In *39th IEEE International Conference on Distributed Computing Systems (ICDCS)*.

Kinzler, M., Miller, J., Wu, Z., Williams, A., & Perouli, D. (2019). Cybersecurity Vulnerabilities in Two Artificially Intelligent Humanoids on the Market. In *Workshop on Technology and Consumer Protection (ConPro '19), held in conjunction with the 40th IEEE Symposium on Security and Privacy*.

Williams, A. B., Williams, R. M., Moore, R. E., & McFarlane, M. (2019). AIDA: A Social Co-Robot to Uplift Workers with Intellectual and Developmental Disabilities. In *2019 14th ACM/IEEE*

*International Conference on Human-Robot Interaction (HRI)* (pp. 584-585). doi:10.1109/HRI.2019.8673272  
ISSN: 2167-2148

Miller, J., Williams, A. B., & Perouli, D. (2018). A Case Study on the Cybersecurity of Social Robots. In *Companion of the 2018 ACM/IEEE International Conference on Human-Robot Interaction* (pp. 195--196). New York, NY, USA: ACM.

Russell, E., Povinelli, R., & Williams, A. B. (2016). Smart Topic Detection for Robot Conversation. In *11th ACM/IEEE International Conference on Human-Robot Interaction, HRI 16, Christchurch, New Zealand, March 2016*.

Russell, E., & Williams, A. B. (2015). Effects of SMILE Emotional Model on Humanoid Robot User Interaction. In *10th ACM/IEEE International Conference on Human-Robot Interaction, HRI15, Portland, OR, March 2015*.

Ramgoolam, D., Russell, E., & Williams, A. B. (2014). Towards a Social and Mobile Humanoid Exercise Coach. In *9th ACM/IEEE International Conference on Human-Robot Interaction, HRI14, Bielefeld University, Germany, March 2014*.

Stroud, A., Russell, E., Chinang, R., Carey, K., Williams, J. C., Ramgoolam, D., & Williams, A. B. (2014). SMILE: A Verbal and Graphical User Interface Tool for Speech Control of Soccer Robots. In *9th Workshop on Humanoid Soccer Robots, 14th IEEE-RAS International Conference on Humanoid Robots, Madrid, Spain, November 18th, 2014*.

Williams, A. B. (2014). AAAI 2014 HRI-AI: Humanoid Robots Discovering Creative Concepts Through Social Interaction. In *Artificial Intelligence for Human Robot Interaction, AAAI Fall Symposium, Arlington, VA, November 13-15, 2014*.

Kaefer, P., Germino, K., Venske, D., & Williams, A. B. (2013). Computational Awareness in a Tactile-Responsive Human Robot Comedian. In *IEEE International Conference on Systems, Man, and Cybernetics, Manchester, UK* (pp. 2843-2848).

Stroud, A., Panka, J., Williams, J. C., & Williams, A. B. (2013). Creative Concept Invention and Representation in an Interactive Child-Robot Healthy Snack Design Game. In *Computational Creativity, Concept Invention, and General Intelligence (C3GI), International Joint Conference on Artificial Intelligence, Beijing, China*.

Stroud, S., Carey, K., Williams, J. C., Randolph, C., & Williams, A. B. (2013). MU-L8: The Design Architecture and 3D Printing of a Teen-Sized Humanoid Soccer Robot. In *IEEE-RAS International Conference on Humanoids, 8th Workshop on Humanoid Soccer Robots, Atlanta, GA*.

Williams, A. B. (2013). Towards Creative Humanoid Conceptualization Learning from Metaphor-Guided Pretense Play. In *Creativity and (Early) Cognitive Development: A Perspective from Artificial Creativity, Developmental AI, and Robotics, AAAI Spring Symposium, Stanford University* (pp. 79-83). AAAI Press.

Thomas, G. T., & Williams, A. B. (2009). Empirical Evaluation of Factors Affecting Heterogeneous Task Allocation. In *Twentieth Midwest Artificial Intelligence and Cognitive Science Conference (MAICS)*, April 18-19, 2009.

Thomas, G. T., & Williams, A. B. (2009). Sequential Auctions for Heterogeneous Task Allocation in Multiagent Routing Domains. In *IEEE International Conference on Systems, Man, Cybernetics (SMC)*, October 11-14, 2009.

Williams, A. B., & O'Banner, W. (2008). SpelBots: Using Autonomous Robotics to Inspire Women to Participate in Computer Science. In *AAAI 2008 Spring Symposium, Using AI to Motivate Greater Participation in Computer Science*, Stanford University, California, Technical Report SS-08-08, Menlo Park, CA, March, 2008. AAAI Press.

Williams, A. B., Touretzky, D. S., Manning, L., Walker, J. J., Boonthum, C., Forbes, J., & Doswell, J. T. (2008). The ARTSI Alliance: Recruiting Underrepresented Students to Computer Science and Robotics to Improve Society. In *AAAI 2008 Spring Symposium, Using AI to Motivate Greater Participation in Computer Science*, Stanford University, California, Technical Report SS-08-08, Menlo Park, CA, March, 2008. AAAI Press.

Williams, A. B., Manning, L., Touretzky, D. S., Boonthum, C., & Allen, C. (2008). Introducing an Experimental Cognitive Robotics Curriculum at Historically Black Colleges and Universities. *ACM SIGCSE Bulletin*, 40(1).

Thomas, G., Grassi, M. A., Lee, J. R., Edwards, A. O., Gorin, M. B., Klein, R., Casavant, T. L., Scheetz, T. E., Stone, E. M., & Williams, A. B. (2007). IDOCS: Intelligent Distributed Ontology Consensus System - The Use of Machine Learning in Retinal Drusen Phenotyping. *Investigative Ophthalmology and Visual Science*, 48(5), 2278-2284.

Inniss, T. R., Light, M., Thomas, G., Lee, J. R., Grassi, M. A., & Williams, A. B. (2006). Towards Applying Text Mining and Natural Language Processing for Biomedical Ontology Acquisition. In *ACM First International Workshop on Text Mining in Bioinformatics (TMBIO)*, in conjunction with *ACM Fifteenth Conference on Information and Knowledge Management (CIKM)*, Arlington, VA, November 10, 2006.

Blake, M. B., Singh, L., Williams, A. B., Norman, W., & Sliva, A. L. (2006). A Component-Based Data Management and Knowledge Discovery Framework for Aviation Studies. *International Journal of Information Technology and Web Engineering*, 1(1), 74-88.

Lee, J. R., & Williams, A. B. (2005). Towards a Theoretical Framework for the Integration of Dialogue Models into Human-Agent Interaction. In *AAAI 2005 Fall Symposium on Mixed-Initiative Problem-Solving Assistants*, Arlington, Virginia, November 4-6, 2005.

Thomas, G., & Williams, A. B. (2005). Roles in the Context of Multiagent Task Relationships. In *AAAI 2005 Fall Symposium on Roles, An Interdisciplinary Perspective*, Arlington, Virginia, November 4-6, 2005.

Thomas, G., Howard, A., Williams, A. B., & Moore-Alston, A. (2005). Multi-Robot Task Allocation in Lunar Mission Construction Scenarios. In *Proceedings. IEEE International Conference on Systems, Man and Cybernetics, Hawaii, USA, October 10-12 2005*.

Williams, A. B., Padmanabhan, A., & Blake, M. B. (2005). Experimentation with Local Consensus Ontologies with Implications for Automated Service Composition. *IEEE Transactions on Knowledge and Data Engineering*, 17(7), 969-981.

Williams, A. B. (2004). Teaching Multi-Agent Systems using AI and Software Technology. In *Third International Joint Conference on Autonomous Agents and Multi-Agent Systems, Workshop on Teaching Multi-Agent Systems, New York City, New York, July 19, 2004*.

Lee, J. R., & Williams, A. B. (2004). Behavior Development Through Task Oriented Discourse. *Journal of Visualization and Computer Animation*, 15(3-4), 327-337.

This archival journal is a special issue: The Very Best Papers from the Computer Animation and Social Agents (CASA) 2004 conference, Geneva, Switzerland, July 7-9, 2004.

Williams, A. B. (2004). Learning to Share Meaning in a Multi-Agent System. *Journal of Visualization and Computer Animation*, 8(2), 165-193.

Blake, M. B., & Williams, A. B. (2003). Developmental and Operational Processes for Agent-Oriented Database Navigation for Knowledge Discovery. In *Proceedings of the 15th International Conference on Software Engineering and Knowledge Engineering, San Francisco, CA, July 1-3, 2003* (pp. 216-224).

Ren, Z., & Williams, A. B. (2003). A Lesson about Single-agent and Multiagent Learning in Robot Foraging. In *IEEE International Conference on Systems, Man, and Cybernetics, Washington, D.C., October 5-8, 2003*.

Williams, A. B., Padmanabhan, A., & Blake, M. B. (2003). Local Consensus Ontologies for B2B-Oriented Service Composition. In *Second International Joint Conference on Autonomous Agents and Multi-Agent Systems (AAMAS 2003), Melbourne, Australia, July 14-18, 2003* (pp. 647-654).

Williams, A. B. (2003). The Qualitative Impact of Using LEGO MINDSTORMS™ to Teach Computer Engineering. *IEEE Transactions. on Education*, 46(1), 206.

Williams, A. B., Krygowski, T., & Thomas, G. (2002). Using Agents to Reach an Ontology Consensus. In *First International Joint Conference on Autonomous Agents and Multi-Agent Systems (AAMAS 2002), Bologna, Italy, July 15-19, 2002* (pp. 990-991).

Williams, A. B. (2002). Disease Genes Discovery via Phenotyping using Multi-Agent Ontology Consensus. In *First International Joint Conference on Autonomous Agents and Multi-Agent Systems (AAMAS), Bioinformatics and Multi-Agent Systems Workshop, Bologna, Italy, July 15, 2002*.

Williams, A. B., & Ren, Z. (2001). Agents Teaching Agents to Share Meaning. In *Fifth International Conference on Autonomous Agents (Agents 2001), Montreal, Canada, May 28-June 1, 2001* (pp. 465-472).



Williams, A. B., Krygowski, T., & Casavant, T. (2001). I-DOCS: Distributed Agent-Assisted Knowledge Fusion for Disease Gene Discovery. In *Proceedings of the Eighth International Conference on Parallel and Distributed Systems (ICPADS 2001)*, Kyongju City, Korea, June 26-29, 2001 (pp. 698-705).

Williams, A. B. (2000). An Instance-based Approach for Identifying Candidate Ontology Relations within a Multi-Agent System. In *14th European Conference on Artificial Intelligence (ECAI 2000), Ontology Learning Workshop*, Berlin, Germany, August 22, 2000.

Williams, A. B. (2000). The Role of Multiagent Learning in Ontology-based Knowledge Management. In *AAAI Spring Symposium on Bringing Knowledge to Business Processes*, Stanford University, March 20-22, 2000 (pp. 175-177).

Williams, A. B., & Tsatsoulis, C. (1999). Diverse Web Ontologies: What Intelligent Agents Must Teach to Each Other. In *AAAI Spring Symposium on Intelligent Agents in Cyberspace*, Stanford University (pp. 115-120).

Soh, L.-K., Tsatsoulis, C., Bower, T., & Williams, A. B. (1998). Representing Sea-Ice Knowledge in a Dempster Shafer Belief System. In *1998 International Geoscience and Remote Sensing Symposium (IGARSS '98)*, July 6-10, 1998, Seattle, Washington (pp. 2234-2236).

### **Invited Presentations/Lectures**

Williams, A. B. (2025, January). Agentic AI for Engineering Education. Workshop presented at The Citadel, Charleston, SC.

Williams, A. B. (2025, January). Agentic AI for Engineering Education. Workshop presented at Ohio Northern University, Ada, OH.

Williams, A. B. (2025, January). AI in the Classroom: Decisions Faculty Need to Make Now. Workshop presented at Ohio Northern University, Ada, OH.

Williams, A. B., Saiedian, H., & Lewis, G. *How to Enhance Diversity in Software Engineering Programs*. 30th IEEE Conference on Software Engineering Education and Training, Savannah, GA. <https://www.cseet2017.com/media.html>.

Williams, A. *Innovating for the Underrepresented*. Lawrence Ecumenical Fellowship and Jayhawker Rotary Club Martin Luther King Celebration, Lawrence, KS. <http://www2.ljworld.com/news/2018/jan/15/mlk-day-speaker-delivers-message-innovating-under/>.

Williams, A. B. (2018, October 29). *Empathy Engineering: Tiny Houses for Hurricane Victims*. National Academy of Engineering Grand Challenge Scholars Program (GCSP) Conference, Washington, DC. <http://www.engineeringchallenges.org/GrandChallengeScholarsProgram/29258/29622.aspx>.  
Invited Presentation for Cool Ideas: GCSP Best Practices and Innovations

Williams, A. B. (2017, October 24). *Careers and Education in Information Technology and Computing*. KCK School District IT Workshop.

Williams, A.B. (2017). *Design Thinking in the Curriculum*. Panelist. Stanford University d.school.

Williams, A. B. (2017, October 18). *Innovation in Engineering Education*. University of Denver Distinguished Speaker Series.

Williams, A. B. (2016). *Co-Robots for CompuGirls*. 5th Anniversary of National Robotics Initiative, U.S. Congressional Robotics Caucus, Washington, DC.

Williams, A. B. (2016). *Lessons Learned: Humanoid Co-Robotics Curriculum and Kits for Girls and Boys*. Milwaukee I-Corps Site Session, Wauwatosa, WI.

Williams, A. (2015). *Belonging in Technology: What I Learned from Steve Jobs*. TEDx UW-Milwaukee, Milwaukee, WI.

Williams, A. (2015). *Connecting the Dots Between Creativity and Innovation*. Walk the Talk Conference, Joint Conference with the Creative Alliance of Milwaukee and Innovation in Milwaukee, Milwaukee, WI.

Williams, A. (2015). *Gender Empowerment and Cultural Responsibility*. National Society of Black Engineers (NSBE) National Convention, General Session Speaker, Anaheim, CA.

Williams, A. (2015). *Humanoid Robots*. National Robotics Week presentation, Barnes and Noble, Glendale, WI.

Williams, A. (2013). *From 3D Printer to the Living Room: the Rise of Next Generation Humanoid Robots*. Visual/Human-Centered Computing Seminar, Clemson University, Clemson, SC.

Williams, A. (2013). *Passion, Purpose, and the Art of Engineering Social Innovation*. NAESC Midwest Regional Conference, Milwaukee, WI.

Williams, A. (2012). *Humanoid Engineering and Intelligent Robotics Research*. Alpha Omega Epsilon Presentation, Milwaukee, WI.

Williams, A. B. (2011). *Intelligent Humanoid Coaches*. RoboCup Mediterranean Open Workshop on RoboCup Research, Rome, Italy.

Williams, A. B. (2010). *Innovations and Equity in Robotics*. 10th Annual 50 Most Important African-Americans in Technology Symposium on Innovation & Equity, San Francisco, CA.

Williams, A. B. (2010). *SpelBots and Robotics at Spelman College*. National Science Foundation Education Technology Showcase at the U.S. Senate Building, Washington, DC.

Williams, A. B. (2009). *Collaboratively Creating a Robot Library*. Future of Robots in Education, Pre-symposium, SIGCSE, Chattanooga, TN.

Williams, A. B. (2008). *SpelBots*. Apple Inc., Cupertino, CA.

Williams, A. B. (2008). *What would Dr. King do to promote science and computing*. National Science Foundation, Martin-Luther King, Jr. Celebration, Keynote speaker, Arlington, VA.

Williams, A. B. (2007). *Aspirations in Genomics: A Computer Science Faculty Story*. National Institutes of Health, National Human Genome Research Institute, Genetics Research Course 2007, Bethesda, MD.

Williams, A. B. (2007). *The Student As Scholar: Undergraduate Research and Creative Practice*. Plenary panelist, Association of American Colleges and Universities, San Diego, CA.

Williams, A. B. (2006). *Advocacy for Math and Science Learning Panel*. Black Women's Agenda Workshop, Washington, DC.

Williams, A. B. (2006). *Getting Started in Robotics*. Grace Hopper Celebration of Women and Diversity, San Diego, CA.

Williams, A. B. (2006). *SpelBots*. Apple Computer, Cupertino, CA.

Williams, A. B. (2006). *SpelBots: Women Making Waves in Robotics Research and Education*. Grace Hopper Celebration of Women and Diversity, San Diego, CA.

Williams, A. B. (2005). Women's College Coalition Panelist, Washington, DC.

Williams, A. B. (2004). *Information Technology for the Elderly: Using Artificial Intelligence to Improve Disease Genes Discovery Process for Late-Onset Blindness*. 2004 Japan-America Frontiers of Engineering Symposium, Keihanna, Japan.

Williams, A. B. (2002). *Programming Agents*. .NET Technologies in the Computing Curriculum Workshop, July 31, Microsoft Research, Redmond, WA.

### **Additional Presentations**

Williams, A. B. (2019, December 7). *KUEST 10: Engineering for Your Community*. Halliburton, Schlagle High School, Lawrence, KS.

Williams, A. B. (2018, November 1). *KUEST: Your Journey to Engineering at KU*. Halliburton, Schlagle High School, Lawrence, KS.

Williams, A. B. (2018, September 19). *KUEST 9: Your Journey to Engineering at KU*. Halliburton, Kaufmann School, Lawrence, KS.

Williams, A. B. (2016). *Humanoid Robotics and Computing Research and Careers*. Back to School with the History Makers presentation, Milwaukee High School of the Arts, Milwaukee, WI. (Invited)

Williams, A. B. (2016). *Humanoid Robots and Careers in Computing*. National Robotics Week Presentations, Rufus King Middle School, Cass Street School, and Golda Meir School, Milwaukee, WI. (Invited)

Williams, A. (2013). *Social Entrepreneurship with STEM: What 3D Printers, Arduinos, and Raspberry Pi's Mean for Innovation*. Morehouse College, Atlanta, GA. (Invited)

Williams, A. (2012). *Humanoid Robot Research*. Marquette Circles Atlanta Faculty Forum, Atlanta, GA. (Invited)

Williams, A. B. (2012). *Humanoids @ Marquette*. Boys and Girls Club, Milwaukee, WI. (Invited)

Williams, A. B. (2012). *Personal Humanoids for Health*. Marquette Electrical Engineering Seminar, Milwaukee, WI. (Invited)

Williams, A. B. (2012). *Succeeding in Academics and Life*. Marquette University NSBE Chapter Presentation, Milwaukee, WI. (Invited)

Williams, A. B. (2011). *Can Humanoids Solve Human Health Problems?*, Clemson University, Clemson, SC. (Invited)

Williams, A. B. (2011). *Can Humanoids Solve Human Health Problems?*, University of North Alabama, Florence, AL. (Invited)

Williams, A. B. (2010). *National Lab Day*. Howard University Middle School, Washington, DC. (Invited)

Williams, A. B. (2010). *SpelBots*. UCLA. (Invited)

Williams, A. B. (2009). *Out of the Box: Building Robots, Transforming Lives*. University of Kansas, School of Engineering, Lawrence, KS. (Invited)

Williams, A. B. (2009). *SpelBots, Computer Science, and Robotics*. Atlanta Youth Academy, Atlanta, GA. (Invited)

Williams, A. B. (2007). *Computer and Robotics Education for African American Students*. Computer Science and Engineering Seminar, University of Washington, Seattle, WA. (Invited)

Williams, A. B. (2007). *SpelBots*. Gendered Pathways to Success in Engineering, Clayman Institute for Gender Research, Stanford University. (Invited)

- Williams, A. B. (2007). *SpelBots*. Gunn High School, Palo Alto, CA. (Invited)
- Williams, A. B. (2007). *SpelBots*. Morehouse Entrepreneurship Center Summer Entrepreneurship Camp, Atlanta, GA. (Invited)
- Williams, A. B. (2007). *SpelBots*. UCLA Center for Excellence in Engineering and Diversity, Los Angeles, CA. (Invited)
- Williams, A. B. (2004). *CDOCS: A Tool for Collaborative Consensus for New Phenotype Vocabularies*. Information and Health at Iowa: Breaking Boundaries and Building Bridges, University of Iowa, Iowa City, IA. (Invited)
- Williams, A. B. (2004). *From iRobot to the Matrix: Will Robots Achieve Artificial Intelligence?*, The Extramural Associates Research Development Award (EARDA) Program, Spelman College, Atlanta, GA. (Invited)
- Williams, A. B. (2004). *Using Artificial Intelligence and Phenotyping to Improve Disease Genes Discovery*. Department of Biology, Spelman College, Atlanta, GA. (Invited)
- Williams, A. B. (2003). *Real Humans, Virtual Humans, and Robotic Dogs: Research and Education in Multi-Agent Learning*. Howard University, Department of Electrical and Computer Engineering, Washington, DC. (Invited)
- Williams, A. B. (2002). *E-Commerce Agents to Virtual Humans: Autonomously Merging Conceptual and Task Knowledge*. Department of Electrical and Computer Engineering, University of Iowa, Iowa City, IA. (Invited)
- Williams, A. B. (2001). *Agents Teaching Agents to Share and Synchronize Meaning*. Computer Science Department, Georgetown University, Washington, DC. (Invited)
- Williams, A. B. (2000). *Multi-Agent Collaboration for Acquiring Knowledge for Disease Gene Discovery*. Department of Industrial Engineering, University of Iowa, Iowa City, IA. (Invited)
- Williams, A. B. (1999). *Learning Ontologies for the World Wide Web*. College of Business, University of Iowa, Iowa City, IA. (Invited)
- Williams, A. B. (1999). *Learning Ontologies in a Multiagent System*. Department of Electrical and Computer Engineering, University of Iowa, Iowa City, IA. (Invited)

## **HONORS AND AWARDS** (Partial List)

Amazon Web Services (AWS) Education Champion, 2022

Business Insider Cloudverse 100, 2022

Mike and Joyce Shinn Leaders and Innovators Award, KU Black Alumni Network (2017)

20 Most Creative People, Milwaukee Magazine (2013)

Selected as ScienceMaker, The HistoryMakers (2013)

Top 50 African Americans in Technology, SoulOfTechnology.com (2013)

Atlanta Hawks Black History Month Trailblazer Award, SpelBots (2010)

Top 50 African Americans in Technology, SoulOfTechnology.com (2009 - 2010)

Distinguished Visitors Program, IEEE Computer Society (2008 - 2010)

Young Engineer Award, College of Engineering, Marquette University Alumni National Award (2008)

Bright Future Award, Black Women's Agenda, SpelBots (2006)

GEM Ph.D. Fellowship, National Consortium for Graduate Degrees in Engineering and Science (1996 - 1999)

## **SERVICE**

### International

- Bioinformatics and Multi-Agent Systems Workshop, International Joint Conference on Autonomous Agents and Multi-Agent Systems, Co-Chair, 2002
- International Joint Conference on Autonomous Agents and Multi-Agent Systems, Doctoral Mentors, 2003
- Japan-America Frontiers of Engineering Symposium, National Academy of Engineering, Kyoto, Japan, Invited delegate, 2004
- RoboCup Autonomous Quadruped Soccer and Humanoid Robot Competitions – Country Opens and International Competitions: Osaka, Japan (2005), Bremen, German (2006), Atlanta, Georgia (2007)
- RoboCup Humanoid Soccer Competitions – Country Opens and International Competitions: Osaka, Japan (2009), Rome, Italy (2010, 2011), João Pessoa (2014), Hefei, China (2015), Team Director and Coach
- Program Committee, IEEE Systems, Man, and Cybernetics.
- Program Committee, International Joint Conference on Artificial Intelligence.
- Program Committee, International Joint Conference on Autonomous Agents and Multi-Agent Systems. (2004 - 2005)
- International Conference on Social Robotics, Organizing Committee
- Google Faculty Summit, Participant, 2009, 2011

- Microsoft Research Faculty Summit, Redmond, WA, Participant, 2001 - 2003
- International Conference on Human-Robot Interaction, Reviewer
- International Conference on Robotics and Automation, Reviewer
- International Conference on Social Robotics, Reviewer
- International Conference on Human-Robot Interaction, Reviewer
- Journal of Field Robotics Reviewer
- Web Technologies, International Joint Conference on Autonomous Agents and Multi-Agent Systems, Session Chair, 2003

#### National

- National Academy of Engineering, Exemplary Admission that Promote Diversity Committee, Member
- ACM Education Advisory Committee (EAC), Member
- ACM Diversity, Equity, and Inclusion in Computing Education Task Force (DEI-CE), Member
- The National GEM Consortium Alumni Association, Treasurer
- Global Grand Challenges Summit for Engineering, Beijing, China. Sponsored by National Academy of Engineering, Royal Academy of Engineering, and Chinese Academy of Engineering, Beijing, China, Invited Delegate, 2015
- Global Grand Challenges Summit for Engineering, Washington, D.C. Sponsored by National Academy of Engineering, Royal Academy of Engineering, and Chinese Academy of Engineering, Invited Delegate and Student Competition Mentor, 2017
- Global Grand Challenges Summit for Engineering, London, United Kingdom. Sponsored by National Academy of Engineering, Royal Academy of Engineering, and Chinese Academy of Engineering, Invited Delegate and Student Competition Mentor, 2019
- National Center for Women and Information Technology, Academic Alliance Advisory Board and former Co-Chair
- Frontiers of Engineering, National Academy of Engineering, Irvine, CA., Invited delegate, 2003
- Advisory Board, School of Engineering, University of Kansas
- Board of Trustees, Milwaukee Institute of Art and Design
- National Institutes of Health, Proposal Review Panel
- National Science Foundation, Proposal Review Panels
- Ford Foundation Fellows Program, National Academy of Engineering, Proposal Review Panel, 2013 – 2016, 2021
- American Association for Artificial Intelligence (AAAI) Robot Building Lab, Participant
- American Society for Engineering Education (ASEE) National Effective Teaching Institute, Participant
- Apple World Wide Developer Conference, STEM Educators Track, Participant
- Assessment and Evaluation Strategies for the Flipped Engineering Classroom, Participant
- Creating an engaging learning environment - FLIP a Lesson, Participant
- Current Topics in Genomics Short Course, National Institutes of Health (NIH) National Human Genome Research Institute.
- DevelopMentor Microsoft.NET Training.

- GE Healthcare Design Thinking Bootcamp.
- Lafferty-KEEN Teaching and Entrepreneurial Minded Learning Community of Practice.
- Learning Styles and Preferences in the Flipped Engineering Classroom.
- Research Based Instructional Strategies training.
- Wakonse Conference on College Teaching.

#### The Citadel

- College Transfer Program Task Force
- Graduate Programs Task Force
- Academic Leadership Team

#### University of Kansas

- Provost Diversity Advisory Council, Member
- Diversity & Equity Campus Equity Implementation Committee. (Appointed) (October 2, 2017 - Present), Member
- University of Kansas Strategic Planning Participant
- Emily Taylor Center for Women and Gender Equity, Advisory Board

#### Marquette University

- Member, Diversity Advisory Committee.
- Participant, Diversity Advocates Training.
- Program Leader, Joint Design and Engineering Program.
- Led Marquette's collaborative efforts to design a new joint design and engineering program between Marquette College of Engineering and Milwaukee Institute of Art and Design (MIAD). Coordinated exploratory design and engineering activities. Conducted interviews with major engineering and design companies in Wisconsin to discover the approach to combining design with engineering including GE Healthcare, Trek, and Briggs and Stratton. Collaborated with GE Healthcare to implement a Design Thinking bootcamp for Marquette College of Engineering Faculty and MIAD Faculty. (2014)

#### Spelman College

- Co-Chair, Educational Technology Committee.
- Research Day Committee.
- Leader, Faculty Focus Group, Model Institution of Excellence.
- Member, Strategic Planning Committee.

#### Marquette University

- Faculty Advisor, NSBE Chapter, College of Engineering.
- Member, Lafferty Endowed Chair Search Committee, College of Engineering.
- Member, Promotion and Tenure Committee, College of Engineering.
- Member, Undergraduate Research Committee, College of Engineering.
- Member, Graduate Committee.



### University of Iowa

- Member, Undergraduate Committee.

## **GRADUATE AND UNDERGRADUATE STUDENT SUPERVISION**

### **Service as Thesis/Dissertation Director - Completed Graduate Students**

- Ronald Moore, M.S., “AIDA: An Assistant for Workers with Intellectual and Developmental Disabilities,” June 2020, University of Kansas, Electrical Engineering and Computer Science. Currently a Ph.D. student in Computer Science at Emory University.
- John R. Lee, Ph.D. “Conversations with an Intelligent Agent: Modeling and Integrating Patterns in Communication among Humans and Agents”, December 2006, University of Iowa, Electrical & Computer Engineering.
- George Thomas, Ph.D., “Heterogeneous Task Allocation and Team Design for Multiagent Routing Domains”, University of Iowa, Computer Science, May 2009. Currently an Assistant Professor at the University of Wisconsin-Oshkosh.
- Elise Russell, M.S., “Real-Time Topic and Sentiment Analysis in Human-Robot Conversation”, December 2015, Marquette University.
- Charles Bartel, M.S., “An Evolutionary Algorithm Framework for Optimizing Robot Behaviors”, Spring 2005, University of Iowa.
- Anand Padmanabhan, M.S., “Building Local Consensus Ontologies via Autonomous Merging using a Lexical Database”, Spring 2003, University of Iowa.
- Todd Krygowski, M.S., “Assisting Experts in Converging to a Common Ontology Using Intelligent Agents”, Spring 2001, University of Iowa.

### Post Doctoral Researcher Supervision

Michael Grassi, M.D., Ph.D., “Tools for Age Related Macular Degeneration Phenotyping”, University of Iowa, 2003-2004.

## **Undergraduate Student Research Projects and Presentations**

### Marquette University

- Ronald Moore, “Towards an Intel-based Galileo Culturally Responsive Robotics Curriculum”, University of Pennsylvania Student, Marquette Research Experience for Undergraduates (REU), 2015
- Mo King, “Design of an Embedded Controller for a Bipedal Robot”, Bard College Student, Marquette University REU, 2015.
- Ryan Walsh and Adrianna Williams (with Matthew Morris, graduate student), “Teen-Sized Humanoid Robot Programming and Design for RoboCup 2015”, 2015.
- Joshua Panka, “Real-time robot soccer tracking using OpenCV”, 2013-2014.
- Adam Stroud, Kellen Carey, John C. Williams, Raoul Chinang, Nicole Gibson, “Design and Implementation of a 3D Printed Humanoid Robot”, 2013-2015.
- Elise Russell, “SMILE: Smartphone Intuitive Likeness and Expression Device”, 2013-2014.
- Darryl Ramgoolam, Kimberly Read, “Humanoid Health Coach for Kids”, 2013-2014.

- Corey Randolph, “Motion Tracking for Humanoid Robot Imitation”, 2013.
- Cristina Morales, “Object Tracking for a Humanoid Healthy Snack Food Game”, University of Puerto Rico Student, Marquette University REU, 2013.
- Raymond Pedraza, “Electrical Power System for a Humanoid Robot”, University of Puerto Rico Student, Marquette University REU, 2013.

#### Spelman College / Morehouse College

- Jonecia Keels and Jazmine Miller, “Coordinating Nao Humanoid Using Machine Learning and OpenCV for Robotic Vision and Localization”, *Won first place in Computer Science Oral Presentations at NSF HBCU-UP National Research Conference, Washington, DC, 2009-2010.*
- Tyler Davis, Breoshshala Martin, Amelia Henderson, “Earthquake Search and Rescue using Autonomous Robots”, 2010.
- Naquashia Jones, “Integrating Wireless Controller with Nao Robot for the Research and Advancement of Robotics in Healthcare”, 2010.
- Christina Sparks and Ronique Young, “Creating Abstract Art Using Mobile Robots”. *Won third place at Spelman College Research Day 2010 for Math and Computer Science Poster Presentations, 2010.*
- Jazmine Miller, “Coordinating Nao Humanoid Robot Vision and Motion for Autonomous Robot Soccer”, 2009.
- Jonecia Keels, “When Kids Meet Humanoids: Robots Created as a Therapeutic and Educational Tool for Children”. *Won third place at NSF HBCU-UP National Research Conference, Atlanta, GA., 2009.*
- Naquashia Jones, “Healthcare Assistive Technology Using a Tekkotsu-Enabled Hexapod Chiara Robot”, 2009.
- Tajiana Hampton and Amankwa Baptiste, “iCreate Robot Vision for Object Recognition Using Tekkotsu and OpenCV”, 2009.
- Jonecia Keels and Jazmine Miller, “CeeJazGo: Integrating Robotics Vision and Motion for Quadruped Robot Soccer”, 2008.
- Luke Yancy, Jr., John Hopps Scholar Program, Morehouse College, Bioinformatics, 2008.
- Anthony Saxon, John Hopps Scholar Program, Morehouse College, Robotics, 2008.
- Andrea Roberson, “Four-Legged Robot Autonomous Path Planning and Navigation Using Tekkotsu”, 2007.
- Whitney O’Banner, “RoboFetch: Locating, Retrieving, and Manipulating Objects through Vision and Infrared Sensor Fusion”. *This project resulted in Whitney O’Banner leading the SpelBots to a tie in the Passing Event of the Four-Legged Technical Challenge at RoboCup 2007 Atlanta. This presentation won first place at the NSF HBCU-UP National Research Conference in Washington, DC., 2007.*
- Ashley Johnson, “Using Cognitive Robotics Vision Primitives for Object Recognition and Local Map Building Using Tekkotsu”, 2007.
- Ebony O’Neal, “Designing an Effective Autonomous Agent with Tekkotsu for the Four-Legged RoboCup Competition”, 2006.
- Samantha Houston, “IDOCs: Collaboratively Describing and Classifying the Features of AMD with Machine Learning”, 2006.

- Aryen Moore-Alston, “The Effects of Teamwork among Multi-Agent Systems”, 2005. *This work led to the first qualification ever by an all-women RoboCup robot soccer team in RoboCup 2005 Osaka, Japan.*, 2005.
- Ebony Smith, “Evaluation of IDOCS: A Bioinformatics Software Tool for Phenotyping Classification and Consensus”, 2005.
- Brandy Kinlaw, Aryen Moore-Alston, Shinese Nobles, Karina Liles, and Ebony O’Neal, Autonomous Robotics, 2004-2005.
- Ebony Smith, Bioinformatics, 2004-2005.
- Jessica Riley and Nicole Epps, Intelligent Video Games, 2004, 2005.
- Adrienne Brown, Bioinformatics, 2004.

### University of Iowa

- Robert McCabe, Fall 2003, Spring 2004, robotics.
- Kendra Maxwell, Spring 2003, bioinformatics
- Gregory Pier, Summer 2003 (Summer Research Opportunities Program SROP), robotics. Charles Bartel and Mike Karson, Summer 2002, web-based database application development. Shun Luoi-Fong, Spring 2001, palm PC applications development. Peter Selato, Summer 2001 (SROP), robotics. Trisha Knake, Spring 2000, Senior Honor’s Project, machine learning.
- Kendra Johnson, Summer 2003 (NSF AGEP Summer Program), biomedical application development.

### **SELECTED MEDIA COVERAGE**

- “Robots Don’t Play Sports for Fun”, New York Magazine, March 2015.
- “Marquette Social Media Class Raises Money Through Crowdfunding Campaigns”, Milwaukee Journal-Sentinel, April 2014.
- “Sassy Robot to RoboCup”, Milwaukee Magazine, March 2014.
- “Are Americans Getting Smarter About Obesity?”, NPR Tell Me More, December 2013.
- “Marquette University Professor Developing Robot to Help Children Exercise”, ASEE First Bell, December 2013.
- “Marquette University Robotics Program Gets Recognition”, ABC WISN-12, March 14, 2013.
- “The SpelBots”, NSF Science Nation, March 22, 2010.
- “Send in the SpelBots!”, Black Enterprise Magazine, August 1, 2007.
- “Introducing the Spelman SpelBots: Imaginative Researchers of Artificial Intelligence Make Their Mark in History”, Ebony Magazine, September 1, 2005.
- “SpelBots”, CNN American Morning, July 27, 2005.
- “SpelBots Score with Technology, Education”, [CNN.com](http://CNN.com), August 8, 2005.
- “Programming Team Breaks New Ground”, CNET News, June 14, 2005.
- “Robotics Dogs Competition - Spelman to bow (wow!) in Japan, Atlanta Journal-Constitution, June 22, 2005.

## **COURSES TAUGHT**

### *The Citadel*

Introduction to AI for Decision Makers  
Machine Learning through Application  
Deep Learning with Text and Image Data

### *The University of Kansas*

Artificial Intelligence  
Human-Robot Interaction  
Embedded Systems

### *Marquette University*

Introduction to Computer Hardware and Software / Hardware Systems  
Database Systems  
Data Structures and Algorithm Analysis  
Introduction to Neural Networks and Fuzzy Systems  
Developments in Computer Applications - Human Robot Interaction  
Object-Oriented Software Engineering

### *Spelman College*

Introduction to Computers  
Computer Organization and Design  
Organization of Programming Languages  
Computer Science I  
Operating Systems and Computer Architecture  
Artificial Intelligence  
Introduction to Robotics

### *University of Iowa*

Computers in Engineering  
Autonomous Agents and Multi-Agent Systems  
Introduction to Software Design  
Distributed Intelligent Agents for Internet and Engineering Systems

## **COURSE AND CURRICULUM DEVELOPMENT**

New Course Innovations - Marquette University

*Intelligent Social Robotics Design*

Social robotics is the study of how co-robots, or collaborative robots, can be developed to cooperate with humans through conversational, emotional, and physical interaction. Social robots are contrasted with traditional robotics by their ability to speak, emote, and learn and by how their users tend to anthropomorphize them. The advent of social assistive social robots, or robots that can help humans, is on the horizon since 3D printing, low-cost computational power, speech recognition and computer vision has made many readily accessible advances. This class will introduce students to the research in social robots through a seminar format. Students will learn how to design and program human-robot interactions using humanoid robots. A semester long project of using human-centered design to develop a fully actuated robot will teach students how to design and evaluate social robots that can learn and interact with humans in an intelligent manner.

### *Human Robot Interaction*

Developed course to introduce the relatively young, multidisciplinary field of human-robot interaction (HRI), which draws from research in fields such as artificial intelligence, robotics, psychology, and human-computer interaction. Human-robot interaction involves enabling robots to interact with humans intuitively with social intelligence in everyday situations and environments to perform in functional roles.

### *Object-Oriented Software Engineering*

Introduced new innovations and concepts in software engineering including agile software development using Scrum, design thinking, entrepreneurial mindset, and lean startup methods. Developing new course modules for iOS mobile and wearable software development using the Swift programming language.

New Course Innovations - Spelman College

### *Introduction to Robotics*

Developed an updated behavior-based, cognitive robotics course using state-of-the-art legged robotics technology, computer vision, and sensor fusion. Students learned practical programming of robot behaviors using C++ and Python.

New Course Innovations - University of Iowa

### *Autonomous Agents and Multi-Agent Systems*

Principles and architectures of autonomous agents and multi-agent systems (MAS). Introduces the concepts of distributed computing platforms and programming, knowledge representation and reasoning subsystems. Practical agent communication language design, planning, coordination, adaptation and learning in a MAS.

## TEACHING DEVELOPMENT ACTIVITIES AND WORKSHOPS

- Research Based Instructional Strategies training
- Apple World Wide Developer Conference, STEM Educators
- GE Healthcare Design Thinking Bootcamp
- Creating an engaging learning environment - FLIP a Lesson
- Learning Styles and Preferences in the Flipped Engineering Classroom
- Assessment and Evaluation Strategies for the Flipped Engineering Classroom
- Current Topics in Genomics Short Course, National Institutes of Health (NIH) National Human Genome Research Institute
- American Society for Engineering Education (ASEE) National Effective Teaching Institute
- Wakonse Conference on College Teaching
- American Association for Artificial Intelligence (AAAI) Robot Building Lab
- DevelopMentor Microsoft.NET Training