

Mark Allen Weiss

Distinguished University Professor

Associate Dean for Undergraduate Education, College of Engineering and Computing

Florida International University

Miami, FL 33199

Email: weiss@fiu.edu

Phone: 305-348-2036

Web page: <http://www.cs.fiu.edu/~weiss>

Overview

Mark Allen Weiss is Distinguished University Professor in the Knight Foundation School of Computing and Information Sciences and Associate Dean for Undergraduate Education of the College of Engineering and Computing at Florida International University. He served as Interim Founding Director of the School of Universal Computing, Construction, and Engineering Education (SUCCEED) having previously served for nine years as Associate Director of the School of Computing and Information Sciences. His interests include data structures, algorithms, and education. He is most well-known for his highly-acclaimed Data Structures textbooks, which have been used by a generation of students. Per opensyllabus.org, [he ranks among the top book authors](#) in the entire field of computer science.

Professor Weiss is the author of numerous publications in top-rated journals and was recipient of the University's Excellence in Research Award in 1994. From 1997-2004 he served as a member of the Advanced Placement Computer Science Development Committee, chairing the committee from 2000-2004. The committee designed the curriculum and wrote the AP exams that are now taken by 60,000 high school students annually. In recent years he served as an elected member of the ACM SIGCSE Board, is now co-leading an NSF-funded project to outline a 15-year agenda for CS Education research, with one goal being to assist NSF in setting its research priorities, and is working on Broadening Participation in Computing in South Florida. Dr. Weiss' work has received over 2,500 citations according to Google Scholar. In addition to his Research Award, Professor Weiss is the recipient of the University's Excellence in Teaching Award. He is a three-time winner of FIU's Top Scholar Award, a four-time winner of the internal competition for nomination as US Professor of the Year, and recipient of the 2017 FIU Torch Award. He is a Fellow of the Institute of Electrical and Electronics Engineers (IEEE) and American Association for the Advancement of Science (AAAS), and an ACM Distinguished Educator. He is the recipient of two major ACM and two major IEEE Education awards, namely the 2015 ACM SIGCSE Award for Outstanding Contribution to Computer Science Education, the 2017 IEEE Computer Society Taylor L. Booth Education Award, the 2018 IEEE Education Society William E. Sayle Achievement in Education Award, and the 2021 ACM Karl V. Karlstrom Outstanding Educator Award.

Education

1987	Ph.D. in Computer Science, Princeton University
1985	M.A. in Computer Science, Princeton University
1984	M.S. in Electrical Engineering and Computer Science, Princeton University
1983	B.E. in Electrical Engineering (Summa Cum Laude), The Cooper Union for the Advancement of Science and Art

Professional Experience

- 2019 - present** Distinguished University Professor, Knight Foundation School of Computing and Information Sciences, Florida International University, Miami, FL.
- 2017 - present** Associate Dean for Undergraduate Education, College of Engineering and Computing, Florida International University, Miami, FL.
- 2015 - present** Affiliate Faculty, STEM Transformation Institute, Florida International University, Miami, FL.
- 2018 - 2021** Interim Founding Director, School of Universal Computing, Construction, and Engineering Education (SUCCEED), Florida International University, Miami, FL.
- 2014 - 2019** Eminent Scholar Chaired Professor, School of Computing and Information Sciences, Florida International University, Miami, FL.
- 2009 - 2018** Associate Director for Academic Affairs, School of Computing and Information Sciences, Florida International University, Miami, FL.
- 1996 - 2014** Professor, School of Computing and Information Sciences, Florida International University, Miami, FL.
- 1992 - 1996** Associate Professor, School of Computer Science, Florida International University, Miami, FL.
- 1987 - 1992** Assistant Professor, School of Computer Science, Florida International University, Miami, FL.

International/National Honors and Awards

- 2022** [ACM Karl V. Karlstrom Outstanding Educator Award](#) (2021 Award): Presented to only one individual worldwide annually since 1989. Citation: "Advancing the art and science of CS education through his textbooks, research, and curriculum design, which have affected thousands of instructors as well as students around the world." ACM has 100,000+ members and this award is CS's top education recognition. Presented June 11, 2022. [Award video](#).
- 2021** Fellow Asia-Pacific Artificial Intelligence Association (AAIA).
- 2018** [IEEE Education Society William E. Sayle Achievement in Education Award](#): Presented to only one individual worldwide annually since 1979. Citation: "For contributions to the advancement of Computer Science education through his books and curricular innovations that have enhanced student learning for both high school and college students." IEEE has 400,000+ members and IEEE Education Society is the IEEE society devoted to engineering education.
- 2018** Fellow, Institute of Electrical and Electronics Engineers (IEEE). Citation: For advancements in computer science education. Conferral of fellow status is limited to 0.1% of all IEEE members annually.
- 2017** [IEEE Computer Society Taylor L. Booth Education Award](#): Presented to only one individual worldwide annually since 1988. Citation: "For outstanding books, contributions to the Advanced Placement program, and their impact in the teaching of data structures and programming." Computer Society is the largest IEEE society. Presented June 14, 2017. [Award video](#).

- 2015** [ACM SIGCSE Award for Outstanding Contribution to Computer Science Education](#): Presented to only one individual worldwide annually since 1981. Citation: “For authoring textbooks that have had a profound impact on generations of students and for invaluable service to the computer science education community.” ACM SIGCSE is the third largest ACM SIG and is devoted to CS education.
- 2012** Fellow, American Association for the Advancement of Science (AAAS). Citation: “For distinguished contributions to the advancement of Computer Science education through his seminal books and curricular innovations that have impacted both high schools and colleges.”
- 2011** ACM Distinguished Educator
- 2000** Data Structures and Algorithm Analysis textbook named one of the thirty most influential books of the twentieth century (ranked #13) by Dr. Dobbs

FIU Honors and Awards

- 2019** Distinguished University Professor
- 2018** FIU Top Scholar (3-time recipient, also recognized in 2016 and 2012)
- 2017** FIU Outstanding Faculty (Torch) Award: Presented to a single faculty member annually who has made a lasting impression on the lives of FIU students and alumni. FIU has over 1,200 full-time faculty members.
- 2015-2012** FIU Nominee, U.S. Professor of the Year (4-time internal competition winner)
- 2007** FIU SCIS Excellence in Service Award
- 2005** FIU SCIS Excellence in Teaching Award
- 1999** FIU University Excellence in Teaching Award
- 1994** FIU University Excellence in Research Award
- 1994** FIU Teaching Incentive Program Award
- 1990** FIU Outstanding Achievement and Performance Award

Grants

1. Cornell Tech (subaward from Pivotal Ventures and Cognizant): Break Through Tech Miami, 2022-2026, \$ [REDACTED]. (Role: **Lead PI**, with co-PI J. Liu, M. Ross, P. Clarke, S. Luis, G. Narasimhan, M. Sadjadi).
 - Miami Herald article: <https://www.miamiherald.com/news/business/article256422926.html>
 - FIU news: <https://news.fiu.edu/2021/fiu-partners-with-break-through-tech-to-increase-diversity-and-gender-equality-in-miamis-tech-ecosystem>
 - Refresh Miami article: <https://www.refreshmiami.com/gender-equality-in-tech-cities-expanding-to-miami-to-help-propel-equity-and-inclusion/>

Summary of Grant: This grant expands Break Through Tech into Miami as the fourth city, following New York City, Chicago and D.C. Its expansion into South Florida was made possible through the Gender Equality in Tech (GET) Cities, an initiative supported by a \$50 million investment from Pivotal Ventures, a Melinda French Gates company, as well as an additional \$7 million investment from the Cognizant Foundation and Verizon. GET Cities is led by both Break Through Tech and SecondMuse Foundation, in partnership with Pivotal Ventures – and together they seek to drive systemic change in the ecosystem to support gender equity in tech from the time a young woman begins their educational journey to when they launch their tech career and ultimately strive to become leaders in both industry and as

entrepreneurs. FIU's Break Through Tech program will include: 1. summer program for students new to computer science, designed to ignite interest in tech by teaching them how to code real-world, mission-driven applications; 2. A paid, three-week mini-internship (called a Sprinternship) program, which gives first- and second-year students a resume credential and real-world experience to make them more competitive when applying for a paid summer tech internship; 3. Further innovations to the curriculum and academic pathways to broaden access to computing; 4. Encouraging a growing community of women in tech in South Florida to support, engage and motivate one another.

2. National Science Foundation 2130398/2130298/2130290: Collaborative Research: Florida Information Technology Graduation Attainment Pathways (lead institution, partnering with UCF and USF), 2021-2026, **\$4,999,902**. FIU Share: \$1,898,240. (Role: **Lead PI**, with co-PIs S. Secules, T. Solis, S. Uluagac, L. Bobadilla, L. Hu, M. Georgiopoulos, M. Heinrich, K. Christensen, R. Perez). *Summary of Grant:* The S-STEM Flit-GAP (Florida IT Graduation Attainment Pathways) is a collaborative project involving Florida International University (FIU), University of Central Florida (UCF) and University of South Florida (USF). Flit-GAP will recruit, retain, and guide to success (graduate and help find a professional pathway) academically talented, financially challenged students in the computing disciplines. Flit-GAP will impact 150 scholars, recruited at the junior-level. Flit-GAP's focus is on (1) creating a hybrid (physical-virtual) learning community that spans the three institutions, and (2) offering professional pathway experiences (research, internship, entrepreneurship) to each of its scholars, reflecting the scholar's interest to pursue graduate studies, work for industry/government, or work for a small company/start own business, upon graduation. The project will research (1) the factors that impact low-income and underrepresented students' perception of the value and cost of future pathways including graduate school (2) the impact of the Flit-GAP hybrid learning community and planned programming on students' belonging, persistence, and pathways, and (3) the enacted nature of the hybrid learning community for formative improvement and translating to other contexts. Results of the project will inform efforts to increase persistence and graduation of low-income students in the computing fields, addressing a national priority. Furthermore, offering professional pathway opportunities to each scholar will provide them with comprehensive educational experiences that will help them identify (or verify) the desired professional pathway (either graduate school, small business, medium-large size business) that they can pursue upon graduation. Florida Trend article: <https://www.floridatrend.com/article/32143/nsf-awards-fiu-two-other-florida-public-universities-5m-to-help-academically-talented-computing-students-graduate-and-continue-their-education>
3. Northeastern University (subaward from Pivotal Ventures): KFSCIS Center for Inclusive Computing, 2021-2023, **\$625,000**. (Role: **Lead PI**, with co-PI M. Ross). *Summary of Grant:* In collaboration with the Northeastern Center for Inclusive Computing, this project will implement the following initiatives to improve the representation of women in the Knight Foundation School of Computing and Information Sciences: 1. Reform programming courses; 2. Expand bias training for faculty and UTAs; 3. Conduct data collection and analysis. FIU News: <https://news.fiu.edu/2021/fiu-receives-grant-to-help-increase-representation-in-undergraduate-computing>
4. National Science Foundation 2039833/2039848: Developing a 15-Year Agenda for Computing Education Research (collaborative with SUNY Buffalo), 2020-2022, **\$312,075**. FIU Share: \$79,398. (Role: **FIU sole-PI**, with SUNY Buffalo sole-PI A. Decker). *Summary of Grant:* This project will facilitate a discussion among a variety of computing professionals, including academics and practitioners who collectively participate in computing education research, to explore the problems and challenges affecting the growth and vitality of computing education, and to

identify potential strategies and solutions to help address these challenges. The workshop will specifically target issues related to building and enhancing the computing professional workforce (e.g. research software engineers, research data science professionals, advanced cyberinfrastructure systems professionals, etc.) with the goal of identifying challenge areas, discussing and identifying potential research directions, and developing a set of recommendations for consideration by the national research community and the NSF. The primary goal of the proposed workshop is to explore the challenges and potential strategies to address the need for advancing computing education research that will develop the knowledge required to advance computing education. The project will result in a report with recommendations for fostering growth and career paths for a diverse, inclusive, and emerging set of professionals that collaborates across traditional boundaries and enables research and education. More information at: <http://cerfutureworkshop.org>

5. National Science Foundation 1643965/1643931/1643835: Collaborative Research: Florida-IT-Pathways to Success (Flit-Path) (lead institution, partnering with UCF and USF), 2016-2021, **\$4,998,732**. FIU Share: \$1,944,118. (Role: **Lead PI**, with co-PIs Z. Hazari, M. Ross, M. Bassiouni, M. Georgiopoulos, M. Heinrich, K. Christensen, R. Perez).
 - Highlighted in ACM TechNews: (<https://technews.acm.org/archives.cfm?fo=2016-10-oct/oct-28-2016.html#892122>)
 - Highlighted in 2017-18 FIU Accountability Plan page 9 (PDF page 10): (https://aim.fiu.edu/BOG/FIU_2018_Accountability_Plan.pdf)
 - Highlighted in 2015-16 FIU Accountability Plan page 9 (PDF page 10): (https://opir.fiu.edu/BOG/FIU_2016_Annual_Report.pdf)

Summary of Grant: The S-STEM Flit-Path (Florida IT Pathways) project will recruit, retain, and provide scholarships and curricular and co-curricular support to academically talented students with financial need in the IT related disciplines of Computer Science, Information Technology, and Computer Engineering. Flit-Path will impact 453 students who are pursuing degrees in Computer Science, Information Technology, and Computer Engineering. The mixed methods explanatory research design includes a longitudinal quantitative study followed by a qualitative longitudinal phenomenological study that is designed to investigate patterns observed in the quantitative data. The longitudinal quantitative study examines changes in students' persistence, computing identity, retention, graduation, and job placement of Flit-Path students compared to non-Flit-Path students. The relationships among particular experiences in the project and levels of change in the outcomes will be examined. The guiding research questions are (1) What are the relative and cumulative effects of project-related experiences on students' persistence, computing identity, and success outcomes? Are these effects different for students from underrepresented groups? (2) What are the relative and cumulative effects of social and economic supports within the program? (3) For specific effects observed, how are these types of activities experienced by students in the program and why might they affect particular educational outcomes? In addition, the project will investigate the supports and barriers that facilitate and impede a collaborative effort across three universities that creates a "community of practice" around student engagement and a sustainable partnership among institutions.

6. An Urban University Coalition Response to Florida's Computer and Information Technology Workforce Needs (joint with UCF and USF) 2013-2018, **\$4,858,413** (FIU share: \$1,533,596) (Role: **FIU lead**).

Summary of Grant: The University of Central Florida, Florida International University and the University of South Florida partnered together to increase the number of graduates in computer and information technology. This project, funded with \$4,858,413, incorporates a number of activities including the

pooling of courses they offer allowing students access to a greater number of faculty each with unique areas of expertise, expanding the reach of job fairs and internship opportunities, providing enhanced student support for gatekeeper courses that have historically been a stumbling block for students to increase student success, and expanding access to and the completion of industry certifications as a part of student coursework. These activities resulted in a substantial increase in the number of students earning a bachelor's degree. The FIU portion of the grant also envisioned the creation of Tech Station and was funded in part by this grant and also by a 2012 IT Performance Funding Grant led by Dr. Weiss.

- Presentation to FLBOG Assoc. Vice Chancellor, April 18, 2015 TEAm Grant Innovation Convening Conference: https://www.flbog.edu/board/advisorygroups/doc/commission-materials/April-17-18_2015/14_CSITUndergraduateLearningAssistantProgram.pptx
 - Tech Station was highlighted in the 2014-15 Accountability Plan page 7 (PDF page 8): https://opir.fiu.edu/BOG/FIU_2015_Annual_Report.pdf
7. State of Florida IT Performance Funding Award, 2012-2017, **\$18,750,000** (Role: **Institution lead**).
 8. National Science Foundation: CISE-EIA: *Development of an Institutional Infrastructure with Special Focus on Human-Computer Interfaces and Information Processing*, (co-PI with M. Adjouadi, A. Barreto, M. Martinez, A. Pasztor, G. Roig, M. Weiss, R. Coatie) Sep 1999 – Aug 2006, \$1,437,770.
 9. Defense Information Systems Agency: *Data Structures Using Ada9X*, 1994, **\$43,075**.
 10. FIU Foundation: Summer Research Grant, 1989, **\$10,350**.
 11. Florida State University Supercomputer Grant, 1988, **\$16,000**.

Administrative Experience

Founding Interim Director, School of Universal Computing, Construction, and Engineering Education (SUCCEED) 2018-2021

- Initiated and led the creation of [SUCCEED: School of Universal Computing, Construction, and Engineering Education](#) a degree-granting unit that serves as the tenure home for Engineering and Computing Education research faculty.
- [Hired four tenure track assistant professors to join a tenure track assistant professor](#) hired under my direction by the School of Computing and Information Sciences. Three of the five assistant professors have already received NSF CAREER awards. Hired a [prominent Engineering Education researcher as permanent Director](#), who started in August 2021.
- With SUCCEED faculty, led and wrote the proposal for the [new B.S. in Interdisciplinary Engineering](#), approved by Florida Board of Governors. Program includes one new course and includes classes on science, engineering, business, leadership, entrepreneurship, as well as projects-based courses. First students graduated in Spring 2021.
- With SUCCEED faculty, led and wrote the proposal for the [new Ph.D. in Engineering and Computing Education](#), approved by Florida Board of Governors at June 2019 meeting. Program includes 12 new courses. FIU is the first university to offer an engineering education doctoral program in Florida and the first to offer a program with a computing education focus in the U.S. First student expected to graduate in 2021 and has accepted a tenure-track position at a research university.
- Integrated the [Center for Diversity and Student Success in Engineering and Computing](#) into SUCCEED.

Associate Dean for Undergraduate Education, College of Engineering and Computing, 2017-present

As Associate Dean for Undergraduate Education in the College of Engineering and Computing since September 2017, responsibilities include basic operations of the College's undergraduate academic programs, serving over 7,000 students, with 110 tenured/tenure track faculty and 37 teaching professors. Per ASEE, our College ranks #22 in production of undergraduate degrees, including #1 for Hispanic graduates and #8 for Black/African American graduates.

- Initiated and led the creation of SUCCEED: School of Universal Computing, Construction, and Engineering EDucation. This new unit, which is part of FIU's College of Engineering and Computing, adapts the engineering education research model established at other universities and will be the first engineering education department/school at a minority-serving institution. It houses two new approved degree programs: a Bachelor's of Science in Interdisciplinary Engineering, and a Ph.D. in Engineering and Computing Education.
- Increased college four-year full-time FTIC graduation rate from **18% to 53% in four years**. Increased college six-year FTIC graduation rate to 64% for all students and also for Pell-grant students, matching the performance of the rest of the university.
- Created the [Senior Design Project Showcase](#) college-wide event, featuring senior projects of 500+ CEC majors per semester in the FIU Arena.
- Initiated and led with the Math department, the creation of specialized Calculus for Engineering sequence of courses. The course has higher success rates and students continuing to follow up courses have higher success rates in those courses.
- Redesigned Engineering Campus classrooms to enable [flexible seating](#) and active learning techniques.
- Chaired the College of Engineering and Computing Building Committee, with groundbreaking of a new building on main campus September 2021.
- Worked with School of Computing and Information Sciences leadership and faculty to create a new [B.S. in Cybersecurity](#) major, approved by Florida Board of Governors.
- Optimized the College's summer offerings and budget, closing a preexisting significant structural deficit.
- With the Advisors and Chairs, developed and implemented strategies to meet student-based success metrics.
- Supervise the Director of Advising and secured funding for two additional advisors.
- Serve as needed as the Dean's representative to College Faculty Council. Major project included the creation of the first college-wide policies and procedure manual.
- Work with student organizations to improve undergraduate education experiences and Engineering Campus facilities.
- Work with College Curriculum Committee and academic units to propose and approve all undergraduate curriculum changes, including streamlining of curricular requirements for all majors.
- Work with College of Arts, Sciences, and Education (CASE) on curricular and teaching reform for math courses taken by CEC students.

- Supervise College of Engineering and Computing Center for Diversity and Student Success in Engineering and Computing (CD-SSEC), including allocating funds for student society chapters and design competition projects and coordinating review of college scholarships.
- Mentor teaching for new assistant professors and non-tenure track faculty.
- Approve/deny various requests from students.
- Coordinate with Chairs and UPDs and GPDs for program and college assessment related to ABET reaccreditation.
- Assist with student grievances and disciplinary issues.
- Assist the Dean with Tenure and Promotion evaluations.

Associate Director for Academic Affairs, School of Computing and Information Sciences, 2009-2018

As Associate Director for Academic Affairs and Undergraduate Program Director of the School of Computing and Information Sciences, responsibilities include basic operations of the School's academic programs, (as of 2018) serving roughly 2,000 students, with 30 tenured/tenure track faculty, 17 instructors, and roughly 35 adjunct faculty. At the end of my term, the School was among the top ten largest in the nation and doubled in size. The overall annual budget exceeded \$15,000,000, including over \$5,000,000 in research expenditures, ranking FIU Computer Sciences #35 according to NSF. The position was equivalent to Associate Dean at a large research university.

- Directly and singly responsible for obtaining over fifteen million dollars of state funding for programs that were ranked as #1 for program quality in the state by the Florida Board of Governors and served as the FIU lead in a joint effort with UCF and USF in the TEAm grant program, also ranked #1, resulting in an additional million plus dollar award.
- Created eleven new permanent Teaching Professor (including four female, six Hispanic), 25+ adjunct, and seven new permanent advisor positions.
- Created fully online B.A. and B.S. in Information Technology degree. **As of Spring 2020, added over 200 online majors by third year.**
- Created a new B.A. in Computer Science degree in face-to-face and fully online formats. **As of Spring 2021, the program added 1,200 new CS majors (14% Black/African American), thus raising the total number of students to above 3,000. The online version has 379 majors, 24% female, and 5% Black/African American female.**
- Assisted in the creation of new Masters degrees in Cybersecurity and Data Science, both of which were joint programs with other units and in ECE department's Bachelor's degree in Internet of Things.
- Led two successful ABET re-accreditations, that included creation of new direct assessments. **2016-17 Self-Study report was selected by ABET for display of well-prepared Self-Study Reports at the 2017 ABET Symposium, April 21-22 in Baltimore, MD.**
- Served as School's liaison for SACSCOC accreditation, creating new SLO and PO assessments. **Received special letter of commendation from Vice Provost for efforts in successful fifth year mid-cycle review.**
- Created and implemented a peer teaching evaluation process for non-tenure track faculty and for tenure-track faculty undergoing third year review or tenure review.
- Created and implemented an undergraduate grader program and facilitated use of undergraduate learning assistants. Presentation to FLBOG Assoc. Vice Chancellor, April 18,

2015: <https://www.flbog.edu/board/advisorygroups/doc/commission-materials/April-17-18-2015/14-CSITUndergraduateLearningAssistantProgram.pptx>

- Led curriculum redesign of IT and CS degrees.
- Redesigned several existing labs, including the [John C. Comfort Lab](#).
- Acquired 8,000 sq ft of new space for state-of-the art [Tech Station facility](#) that includes hardware and software labs, advising space, classroom space, and group work space.
- Acquired 5,000 sq ft of additional new space for the MERIT (**M**ultiuse **E**ducation, **R**esearch, and **I**nterdisciplinary **T**raining) center, completed Summer 2018.
- Increased School's 6-year FTIC graduation rate from 22% for Fall 2004 and Fall 2005 cohorts to 57% for Fall 2013 cohort.
- Instituted mechanism to verify prerequisites for students enrolled in the College of Engineering and Computing.
- Created all course schedules for 80 faculty per year.
- Handled advising, student grievances, and approved graduation certifications.
- Expanded dual enrollment program from roughly 400 to nearly 800 instances of enrollment over five years and supervised assessment in accordance with SACSCOC requirements.

Additionally, served concurrently as Graduate Program Director from 2009-2011 (i.e. both Undergraduate and Graduate Program Director, and Associate Director for Academic Affairs) and led approval of Masters in Information Technology degree, and Ph.D. program review.

Selected Publications

1. C. Tang, C. Tucker, M. A. Weiss, S. H. Zweben, "Tracking CS Graduates and Non-Retained Students to the Following Year's Academic Programs," *ACM Inroads*, (2022) to appear.
2. M. Ross, M. A. Weiss, L. Minaya, A. Laginess, D. Patel, K. Quardokus, "Removing a Barrier: Analysis of the impact of removing math and science from CS on employability, salary, and broadening participation," 53rd SIGCSE Technical Symposium, (2022), to appear.
3. S. Lunn, M. Ross, Z. Hazari, M. A. Weiss, K. Christensen, M. Georgiopoulos, "How Do Educational Experiences Predict Computing Identity?" *ACM Transactions on Computing Education*, 22, 2, Article 12 (June 2022), 1-28. DOI: <https://doi.org/10.1145/3470653>.
4. R. Duran, E. K. Hawthorn, M. Sabin, C. Tang, M. A. Weiss, S. H. Zweben, "Retention in 2017-18 Higher Education Computing Programs in the United States," *ACM Inroads*, (2021) 12 (2), 18-28.
5. S. Lunn, M. Ross, Z. Hazari, M. A. Weiss, K. Christensen, M. Georgiopoulos, "The impact of technical interviews, and other professional and cultural experiences on students' computing identity." *Innovation and Technology in Computer Science Education (ITiCSE)*, (2021), 415-21.
6. M. Kargarmoakhar, M. Ross, Z. Hazari, M. Weiss, M. Georgiopoulos, K. Christensen, T. Solis, "Computing Pathways: A Quantitative Inquiry into the Dynamic Pathways of Students in Computing with Gender Comparisons," American Society for Engineering Education (ASEE) Conference Proceedings, ASEE (2020).
7. M. Kargarmoakhar, S. Lunn, L. Zahedi, M. Ross, Z. Hazari, M. A. Weiss, M. Georgiopoulos, K. Christensen, T. Solis, "Understanding the Experiences that Contribute to the Inclusion of Underrepresented Groups in Computing," *Frontiers in Education* (2020), 1-9.
8. A Decker, M. A. Weiss, J Sheard, "Announcing the SIGCSE test of time award," *ACM SIGCSE Bulletin* 51 (2), (2019) 17.

9. M. Taheri, M. Ross, Z. Hazari, M. Weiss, M. Georgiopoulos, K. Christensen, T. Solis, D. Chari, and Z. Taheri, "Exploring Computing Identity and Persistence Across Multiple Groups Using Structural Equation Modeling," American Society for Engineering Education (ASEE) Conference Proceedings, ASEE (2019).
10. M. Taheri, M. Ross, Z. Hazari, M. Weiss, M. Georgiopoulos, K. Christensen, A. Garcia, D. Chari, and T. Solis, "A Structural Equation Model Analysis of Computing Identity Sub-Constructs and Student Academic Persistence," *Frontiers in Education* (2018), 1-7.
11. A. Garcia, M. S. Ross, Z. Hazari, M. A. Weiss, T. Solis, and M. Taheri, "Examining the Computing Identity of High-Achieving Underserved Computing Students on the Basis of Gender, Field, and Year in School," National Collaborative for Engineering Diversity (CoNECD), 2018.
12. R. Balcazar, F. Ortega, K. Tarre, A. Barreto, M. Weiss, and N. Rische, "CircGR: Interactive Multi-Touch Gesture Recognition using Circular Measurements," *ACM International Conference on Interactive Surfaces and Spaces* (2017), 12-21.
13. M. A. Weiss, "Data Structures, Past, Present, and Future," *Proceedings of the 46th ACM Technical Symposium on Computer Science Education*, 2015 (Keynote address).
14. M. A. Weiss, *Data Structures and Algorithm Analysis in C++*, Addison Wesley, Reading, MA., 1994, 498 pgs. Second edition, 1999, 588 pgs. Third edition, 2007, 586 pgs. Fourth edition, 2014, 656 pgs.
15. M. A. Weiss, "Data Structures," *Handbook of Computer Science*, CRC Press, Third Edition, 2014.
16. Robert K Lowery, G. Uribe, E. B. Jimenez, M. A. Weiss, K. J. Herrera, M. Regueiro, and R. J. Herrera, "Neanderthal and Denisova genetic affinities with contemporary humans: introgression versus common ancestral polymorphisms," *Gene*, 530 (2013), 83-94.
17. M. A. Weiss, *Data Structures and Algorithm Analysis in Java*, Addison Wesley, Reading, MA., 1999, 542 pgs. Second edition, 2007, 546 pgs. Third edition, 2012, 614 pgs.
18. M. A. Weiss, *Data Structures and Problem Solving Using Java*, Addison Wesley, Reading, MA., 1998, 780 pgs. Second edition, 2002, 886 pgs. Third edition, 2006, 926 pgs. Fourth edition, 2010, 988 pgs.
19. M. A. Weiss, "Parameter Passing," *Encyclopedia of Computer Science and Engineering*, Wiley, 2009.
20. S-C. Chen, X. Wang, N. Rische, and M. A. Weiss, "A Web-Based Spatial Data Access System Using Semantic R-Trees," *Information Science: An International Journal*, 167 (2004), 41-61.
21. M. A. Weiss, "STL," *Handbook of Data Structures and Applications*, CRC Press, 2004.
22. M. A. Weiss, *C++ for Java Programmers*, Prentice-Hall, Upper Saddle River, NJ, 2004, 280 pgs.
23. M. A. Weiss, *Data Structures, and Problem Solving with C++*, Addison Wesley, Reading, MA., 1996, 820 pgs. Second edition, 2000, 944 pgs.
24. O. Astrachan, G. Chapman, S. Rodger, and M. A. Weiss, "The Reasoning for The Advanced Placement C++ Subset," *SIGCSE Bulletin* (1997), 62-65.
25. M. A. Weiss, "Experiences Teaching Data Structures with Java," *SIGCSE Bulletin* (proceedings of the 28th SIGCSE Technical Symposium), (1997), 164-168.
26. M. A. Weiss, *Operating Systems*, article published as part of *Microsoft's Encarta Encyclopedia*, 1997.
27. M. A. Weiss, *Data Structures and Algorithm Analysis in C*, Addison Wesley, Reading, MA., 1993, 461 pgs. Second edition, 1997, 512 pgs.

28. S. Guo, W. Sun, and M. A. Weiss, "On Solving Satisfiability, Implication, and Equivalence Problems Involving Conjunctive Inequalities in Database Systems," *IEEE Transactions on Knowledge and Data Engineering* 8 (1996).
29. S. Guo, W. Sun, and M. A. Weiss, "Solving Satisfiability and Implication Problems in Database Systems," *ACM Transactions on Database Systems* 21 (1996), 270-293.
30. M. A. Weiss, "Shellsort with a Constant Number of Increments," *Algorithmica*, 16 (1996), 649-654.
31. M. A. Weiss, *Data Structures and Algorithm Analysis in C*, published as part of the *Dr. Dobbs CD on Essential Algorithms*, 1996.
32. M. A. Weiss, *Efficient C Programming: A Practical Approach*, Prentice-Hall, Englewood Cliffs, NJ., 1995, 528 pgs.
33. M. A. Weiss, *Data Structures and Algorithm Analysis*, Benjamin/Cummings Publishing Co., Redwood City, CA., 1992, 455 pgs. Second edition, 1995, 510 pgs.
34. W. Sun and M. A. Weiss, "An Improved Algorithm for Implication Testing Involving Arithmetic Inequalities," *IEEE Transactions on Knowledge and Data Engineering* 6 (1994), 997-1001.
35. Y. Ding and M. A. Weiss, "On the Complexity of Building an Interval Heap," *Information Processing Letters* 50 (1994), 143-144.
36. M. A. Weiss, "On Finding the Height of a Binary Search Tree," *Computer Journal* 36 (1993), 280-281.
37. Y. Ding and M. A. Weiss, "The Relaxed Min-Max Heap: A Mergeable Double-Ended Priority Queue," *Acta Informatica* 30 (1993) 215-231.
38. Y. Ding and M. A. Weiss, "The k-d Heap: An Efficient Multi-Dimensional Priority Queue," *Proceedings of the Third Workshop on Algorithms and Data Structures*, Montreal Canada, Aug. 1993, Springer-Verlag Lecture Notes #709, 303-314.
39. C. Orji, J. Solworth, and M. A. Weiss, "Improved Traditional Mirrors," *Proceedings of the Fourth International Conference on Foundations of Data Organization and Algorithms*, Chicago Illinois, Oct. 1993, Springer-Verlag Lecture Notes #730, 329-344.
40. M. A. Weiss, *Data Structures and Algorithm Analysis in Ada*, Benjamin/Cummings Publishing Co., Redwood City, CA., 1993, 480 pgs.
41. Y. Ding and M. A. Weiss, "Best Case Lower Bounds for Heapsort," *Computing* 49 (1992), 1-9.
42. B. Feild, G. Fraguio, J. K. Navlakha, and M. A. Weiss, "Expert Systems and Music: Translating Piano Music into Guitar Chords," *Advances in Artificial Intelligence Research, Volume II*, JAI Press, 1992.
43. M. A. Weiss, "Empirical Study of the Expected Running Time of Shellsort," *Computer Journal* 34 (1991), 88-91.
44. M. A. Weiss and R. Sedgewick, "Tight Lower Bounds for Shellsort," *Journal of Algorithms* 11 (1990), 242-251.
45. M. A. Weiss and R. Sedgewick, "More on Shellsort Increment Sequences," *Information Processing Letters* 34 (1990), 267-270.
46. M. A. Weiss and J. K. Navlakha, "The Distribution of Keys in a Binary Heap," *Proceedings of the Workshop on Algorithms and Data Structures*, Ottawa Canada, Aug. 1989, Springer-Verlag Lecture Notes #382, 510-516.
47. M. A. Weiss and R. Sedgewick, "Bad Cases for Shaker Sort," *Information Processing Letters* 28 (1988), 133-136.

48. M. A. Weiss and R. Sedgewick, "Tight Lower Bounds for Shellsort (extended abstract)," *Proceedings of the Scandinavian Workshop on Algorithms and Theory*, Halmstad Sweden, July 1988, Springer-Verlag Lecture Notes #318, 255-262.

Panel Discussions

1. A. Decker, M. A. Weiss, et al, "Piecing Together the Next 15 Years of Computing Education Research Workshop Report," SIGCSE 2022.
2. M. A. Weiss, M. S. Kahn, R. Ramos, B. Wee, "Faculty Panel and Q&A," National Academies of Science, Engineering, and Mathematics Gulf Scholars Winter Workshop, 2020.
3. R. L. S. Drysdale, J. Hromcik, M. A. Weiss, R. Hahne, "Java in the Morning... Java in the Evening... Java in 2004," SIGCSE 2003.
4. D. Gries, K. Larson, S. H. Rodger, M. A. Weiss, U. Wolz, "AP CS Goes OO," SIGCSE 2001.
5. T. Dick, R. Peck, M. A. Weiss, "AP and College Faculty: What's in it for me?," ICTCM 2000.
6. M. Stehlik, S. Fix, S. H. Rodger, C. Nevison, M. A. Weiss, "Advanced Placement Transition to C++," SIGCSE 1998.

Professional Activities

1. Associate Editor, IEEE Transactions on Emerging Topics in Computing (2021-) *Education area*.
2. Member, IEEE Technical Activities Board Awards and Recognition Committee (2021-). *The committee oversees the Technical Activities Board and Society/Council Awards Programs. There are 39 IEEE societies and 7 councils.*
3. Member, IEEE Computer Society Awards Committee (2018-2020); Chair (2021-). *This committee has final approval for all IEEE Computer Society awards, which are exceptionally prestigious and competitive. See: <https://www.computer.org/volunteering/boards-and-committees/awards>*
4. Member, IEEE Computer Society Mary Kenneth Keller Undergraduate Teaching Award Subcommittee (2021).
5. Interim Chair, IEEE Computer Society Harlan Mills Award Subcommittee (2020). *Served as interim chair due to conflict of interest of subcommittee chair with nominee.*
6. Member, IEEE Education Society Nominations Committee (2020). *Selected candidates to be placed on election ballot for Education Society Board of Governors and officer positions.*
7. Member, IEEE Computer Society Taylor Booth Award Subcommittee (2017); Chair (2018-2020). *Committee evaluates and selects the winner of the 2018-2021 Taylor Booth Awards.*
8. Member, IEEE Computer Society Fellows Committee (2018, 2020). *Evaluated some of the IEEE Computer Society Fellows applications.*
9. Member, ACM Education Advisory Committee (formerly ACM Education Council) (2016-2019). *Advised ACM on all education issues, including accreditation efforts, broadening participation initiatives, etc.*
10. Elected Member, ACM SIGCSE Advisory Board (2016-2019). *Advisory Board oversees the major ACM Education conferences and ACM's third largest SIG. The board undertook many initiatives, and attendance at the largest conference rose from 1,253 in 2016 to over 1,800 in 2019.*
11. Advisory Board Member, IEEE International conference on Emerging Computation and Information Technology (ICECIT-2017).
12. Interim Educational Activities Chair, IEEE Education Society Florida Chapter (2016).
13. Designated as Kyoto Prize Nominator (2015, 2019).

14. Computer Science Discipline Coordinator, Florida Department of Education (2011-2018).
15. Program Committee Member ACMSE (2006).
16. Member of the Advanced Placement Computer Science Development Committee (1997-2004); Chairperson of the committee (2000-2004). *Developed curriculum and exams for the nationwide Computer Science Advanced Placement Exam. The exam transitioned from Pascal to C++ to Java during this period.*
17. Member of the Ad-Hoc Committee on the Future of the Advanced Placement Examination (1999-2000).
18. Member of the Ad-Hoc Committee that advised the College Board on how to incorporate C++ into the Advanced Placement Exam (1995-1996).
19. Reader of the *Advanced Placement Computer Science Examination* (1999).
20. Columnist for the *ACM SIGACT News*. The *Journal Backlog Report* and *Technical Report Column* were regularly appearing features (1992-1997).
21. Examiner for Educational Testing Service. *Wrote questions for the GRE C.S. Examination (1990s).*
22. Registration Chair for PDIS I, 1991.
23. Judge for the International Science and Engineering Fair, Orlando (1991).

University Service

1. Member, College of Engineering and Computing 2025 Strategic Planning Committee (2020-)
2. Chair, Building Committee, FIU College of Engineering and Computing (2019-)
3. Co-Chair, FIU 2025 Strategic Plan “Enhancing student experience and certification of workforce competencies” workgroup (2018-)
4. Member, Faculty Senate (Spring 1991-1992, 2015-2017)
5. Member, Council of College Research & Graduate Education Administrators (2017-2018)
6. Member, University Student Success Committee (2016-2017) *This committee initiated the Student Success Conference and also worked with Academic Affairs to draft the NC grade policy.*
7. Member, University Sustained Performance Evaluation Policy Committee (2015-2017) *This committee worked with Academic Affairs and UFF to update the Sustained Performance Evaluation procedures.*
8. Member, American Disabilities Act Compliance Subcommittee (2012-2013)
9. Inaugural Member, University Graduate School Advisory Committee (2011-2016) *This committee was formed by UGS Dean Lakshmi Reddi to provide guidance on graduate policies.*
10. Member, University Sabbatical Leave Committee (2008-2009)
11. Member and Chair, College of Engineering and Computing Committee on Tenure Revision Guidelines (2007)
12. Member, College of Engineering and Computing Class Schedule Committee (2006-2007)
13. Member and Vice Chair, College of Engineering and Computing Faculty Council (2006-2007)
14. Member, University Tenure and Promotion Policy Committee (1998-1999)
15. Member, University Curriculum Committee (1998-1999)
16. Procedural Committee, College of Arts & Sciences (1991-1992, (chair) 1992-1995)
17. Secretary, College of Arts & Sciences (1992-1994)
18. Member, University Academic Policies Committee (1991-1993)
19. Editor of UFF Newsletter (1989-1991)
20. Member, College of Arts & Sciences Library Committee (1987-1989)

School of Computing and Information Sciences Service

1. Undergraduate Program Director (2009-2018)
2. Graduate Program Director (1994-1996, 2009-11)
3. Human Resources (Tenure and Promotion) Committee (1989-1990, 1992-1995, (chair) 1996-1997, 2002-2004, (chair) 2006-2007, (chair) 2008-2009)
4. Graduate Committee (1988-1990, 1991-1992, 1994-1996)
5. Curriculum Committee ((chair) 1998-1999, (chair) 2001-2002, (chair) 2003-2004, 2004-2005)
6. Recruitment Committee (1989-, (chair) 1990-1992, (chair) 1997-1998, (chair) 1999-2001, (chair) 2002-2003, 2006-2007)
7. Equipment Committee ((chair) 2004-2006)
8. Awards Committee ((chair) (2006-2007, 2008-2009))
9. Editor CONNECT Newsletter (1996-1997)
10. TIP Award Committee (1996)
11. Faculty Advisor for Programming Team (1990-1991) (with M. Milani); team was second in region and advanced to ACM Finals.
12. Colloquium Series Coordinator (1990-1991, 1997-1998)

Doctoral Committees

1. Maral Kargarmoakhar, "A mixed methods study: How cultural messages through experiences influence occupational pursuit of Muslim female computer science students" (in progress, Major Professor: Monique Ross)
2. Stephanie Lunn, "Technical Interviews: Another Barrier to Broadening Participation in Computing?" (2021, Major Professor: Monique Ross)
3. Mohsen Taheri, "A Structural equation model analysis of computing identity sub-constructs and student academic persistence" (2020, Major Professor: Monique Ross)
4. Sha Guo, "Solving satisfiability, implication, and equivalence problems in database systems" (1997, Major Professor: Wei Sun)

Master's Thesis Supervision

1. Xiao Sheng, "Implementation of the k -d Heap," (1996)
2. Yuping Huang, "Comparison of Searching Algorithms," (1996)
3. Xinwei Cui, "Using Genetic Algorithms to Solve Combinatorial Optimization Problems," (1991)

Courses Developed

1. Discrete Structures (Fall 2016)
2. Algorithm Techniques (Spring 2012)
3. Programming III (Spring 2002)
4. C for Engineers (Fall 1991)
5. Topics in Algorithms (Spring 1989)

Courses Taught

1. Introduction to Programming (COP-2210)
2. C for Engineers (CGS-3423)

3. Programming II (COP-3212/COP-3337)
4. Intermediate Java Programming (COP-3804)
5. Advanced Programming (COP-3223/COP-3338)
6. Data Structures (COP-3530, recent sections recorded)
7. Unix Systems Programming and C (COP-4225)
8. Programming III (COP-4338)
9. Topics in Algorithms (COT-5992/COT-5936/COT-6936)
10. Analysis of Algorithms (COT-6315/COT-6400/COT-6405)
11. Microcomputer Applications for Business (CGS-2100, fully online)
12. Introduction to Algorithms (COT-5407, some sections fully online)
13. Algorithm Techniques (COP-4534, recent sections recorded)