Fred G. Martin

CV – December 2025

Biosketch

Fred Martin is Professor of Computer Science and Interim Dean of the College of AI, Cyber and Computing at the University of Texas at San Antonio.

Appointed as Interim Dean on June 1, 2025, Dr. Martin is launching UT San Antonio's new College of AI, Cyber and Computing. He is creating synergies across four departments: two existing ones, Computer Science and Information Systems & Cybersecurity, and two new ones, Statistics & Data Science and Computer Engineering. He appointed four associate deans, mentors four department chairs and three institute/center director leads, and oversees a team of 15 total college staff members. He designed a college-based student support structure based on six additional full-time staff hires. He is creating cross-college programs to attract and retain increased enrollments and is preparing faculty, staff and students for a Summer 2026 physical move from the university's Main Campus to anchor its Downtown Campus.

As chair, from 2023 through 2025, Dr. Martin led UT San Antonio's thriving department of computer science with 52 faculty members, more than 2,000 undergraduate majors, 98 Master's students, and 83 PhD students. In FY24, the department supported research expenditures of $16.4M, including those of its Center for Infrastructure Assurance and Security (CIAS) and Institute for Cyber Security (ICS). Martin supervised three direct reports and oversaw a department team of eight total staff members; prioritized mentoring of faculty, both tenure-track and teaching-track; and created new experiential learning opportunities for its students.

As a scholar, Dr. Martin's research focuses on K–12 computer science, data science, and artificial intelligence education. He develops innovative technologies that create new experiential learning opportunities for K–12 students. He has been supported with more than $5.5M of external funding raised as PI, including the NSF CAREER award and a new $200K award (2025) to enhance teacher understanding and ethical classroom use of AI, in partnership with the Northside Independent School District, the largest in San Antonio, TX. Martin co-founded the AI4K12 Initiative (`aik12.org`) which now guides AI K–12 education research and curriculum initiatives worldwide; Martin and the team won the AAAI/EAAI Outstanding Educator Award in 2022.

Prior to joining UT San Antonio, Dr. Martin built a 21-year career at the University of Massachusetts Lowell, a regional public institution with about 17,000 students. With a computer science faculty appointment in a Sciences college, Martin served in college-wide faculty success and student success roles for 12 years, including collaborations with the university's advancement, admissions, residence life, and student wellness units. He served six years as an associate dean leading experiential learning initiatives for the college's undergraduates and in career support for its 45 teaching-track faculty members.

University of Texas at San Antonio – 1 UTSA Circle – San Antonio, TX 78249 US

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Education

1994 **PhD**, *Massachusetts Institute of Technology*, Cambridge, MA
Program in Media Arts and Sciences
Advisor: Dr. Edith K. A. Ackermann. Dissertation: "Circuits to Control: Learning Engineering by Designing LEGO Robots," a study of the development and evaluation of an intensive design class for undergraduate students as a constructionist model of engineering education.

1988 **MS**, *Massachusetts Institute of Technology*, Cambridge, MA
Mechanical Engineering
Advisor: Dr. Seymour Papert. Thesis: "Children, Cybernetics, and Programmable Turtles," a study of children's thinking when writing computer programs to control the actions of small, mobile robots.

1986 **BS**, *Massachusetts Institute of Technology*, Cambridge, MA
EECS: Computer Science
Advisor: Dr. Warren Seering. Thesis: "Trajectory Control of a Cartesian Manipulator," a project to develop control algorithms for an experimental manufacturing robot arm.

Positions Held

University of Texas at San Antonio

2025– **Professor and Interim Dean**, *College of AI, Cyber and Computing*

2023–2025 **Professor and Chair**, *Department of Computer Science*

University of Massachusetts Lowell

Faculty appointment in Computer Science.

2023–2025 **Research Professor**, *Miner School of Computer and Information Sciences*

2017–2023 **Professor and Associate Dean for Teaching, Learning, and Undergraduate Studies**, *Kennedy College of Sciences*

2015–2017 **Professor and Director of Student Success**, *Kennedy College of Sciences*

2013–2015 **Associate Professor and Director of Student Success**, *College of Sciences*

2011–2012 **Associate Professor and Associate Dean**, *College of Sciences*
Three semesters.

2011 **Associate Professor and Acting Chair**, *Computer Science*
One semester.

2009–2010 **Associate Professor and Associate Chair**, *Computer Science*
Three semesters.

2008–2009 **Associate Professor**, *Computer Science*

2002–2008 **Assistant Professor**, *Computer Science*

Massachusetts Institute of Technology

1996–2000 **Research Scientist**, *MIT Media Laboratory*

1994–1996 **Postdoctoral Fellow**, *MIT Media Laboratory*

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Chair, University of Texas at San Antonio

Accomplishments

2024; 2025 **Hired two tenure-track, one tenured, and four fixed-term track faculty members.** Recruited two tenure-track assistant professors in cybersecurity and privacy, an associate professor with tenure as part of a cluster hire, and four teaching-track faculty members.

Spring 2025 **Nominated six faculty members for University Excellence Faculty Awards.** Four were advanced to the University level nomination by the College of Sciences.

Spring 2025 **Launched in BS degree in Software Engineering**, including strengthening experiential learning expectations, streamlining course offerings, and creating more student flexibility in program design.

2024– **Created new experiential learning opportunities for students.** Collaborated with CodePath.org, a non-profit providing intensive career advancement courses to computer science students, to offer technical interview prep courses to 31 undergraduates (Fall 2024) and an expected 22+ (Spring 2025); recruited SWBC, a San Antonio-based financial services firm, to mentor a capstone project in Senior Design (Spring 2025); partnered with engineers at IBM/Red Hat to offer an advanced Linux kernel development course to 23 UTSA students (Spring 2025).

2024; 2025 **Promoted two faculty members to Associate Professor with Tenure and one to Full Professor.**

Spring 2024 **Secured directorship transitions in the Department's two large centers.** After retirements of two long-time senior faculty members in the department: (1) recruited a full professor faculty member at UTSA to assume directorship of the department's Institute for Cyber Security ($837K research expenditures in FY23), including securing the Provost's support for transferring endowments for purposes of supporting the institute; and (2) recruited a long-time staff member to role of Interim Director of the Center for Infrastructure Assurance and Security ($3.612M research expenditures in FY23).

Spring 2024 With support from faculty, **persuaded the Graduate School to remove an uncompetitive comprehensive exam requirement** in department's MS program, thereby increasing department's effectiveness by eliminating work for faculty and students that provided minimal learning benefits.

Fall 2023 **Facilitated re-imagining of Department's PhD qualifications process** from a course- and exam-based trial into one that places emphasis on developing students' research skills.

Responsibilities

- **Supervised three direct reports and eight total full-time staff.** Supervised the department's Administrative Services Officer, Senior Management Analyst, and Academic Computing Manager.
- **Supervised the Interim Director of the Center for Infrastructure Assurance and Security**.
- **Mentored and evaluated 22 tenured/tenure-track research-active faculty with primary appointments** and **25 fixed-term track faculty members** in the department (excluding self from count).

Associate Dean, UMass Lowell

Accomplishments

2023 **Redesign of BSIT degree program.** Led a process with ten faculty and staff members to redesign the college's BSIT program, which had been in place since its launch in 1979. Secured collaborations with School of Business and College of Health Sciences. The new design launched in Fall 2023 as a higher quality and more transfer-friendly program.

2017–2023 **River Hawk Review.** Created a credit-recovery program for undergraduate students. Faculty coach students with a review of course material followed by a supplementary final exam. If students achieve on the exam, their prior grade is updated. More than 225 students enrolled, with more than half advancing in their degree progress as a result.

2018–2023 **KCS Teaching Faculty Community.** Supported approx. 45 teaching-track faculty in career development. Built a mentorship program where associate/full faculty mentor junior faculty. Held group meetings and mentored faculty individually.

2018–2023 **KCS Undergraduate Design Projects.** Created project partnerships among faculty, students, and industry sponsors where students worked on company-defined projects for academic credit. 10 projects supported with $200K of external funding raised.

2019–2023 **KCS Cyber Range.** Coordinated development of campus cyber range facility, including ribbon-cutting launch event. Served as point-of-contact for education partnerships.

2019–2023 **KCS Science Scholars Program.** Developed program to support undergraduates in summer research in faculty labs. More than 40 students were supported over three years.

2019–2023 **SoarCS Summer Bridge Program.** Developed summer bridge program for incoming first-year computer science majors to build diversity in the major. Over 100 women, Black, LatinX, and first-generation students supported with $30K of external funding raised.

Responsibilities

- **Supervised one direct report.** Supervised the college's Coordinator of Undergraduate Projects, a full-time staff member.
- **Supported two college-based advisors.** Had dotted-line supervision of two full-time professional staff academic advisors. Worked with chairs to implement advising policy.
- **Interviewed faculty candidates and wrote reappointment and promotion letters.** Worked closely with the Dean and other associate dean, met both tenure-track and teaching-track candidates; drafted reappointment and promotion letters.
- **Organized teaching and learning workshops.** Recruited campus faculty/staff and external presenters to host discussions on pedagogy. Coordinated with Provost's Office to extend invitations to the whole campus.
- **Developed proposals for student learning initiatives.** Wrote proposals to non-profit and government foundations as well as NSF to support college initiatives for undergraduate student success.
- **Handled student academic misconduct cases.** Gathered evidence from faculty and students when academic misconduct reports were appealed; made recommendation of sanctions to the Provost.

- **Advocated for University's first-gen student program.** Led college engagement with River Hawk Scholars Academy, the campus program for first-generation students.
- **Hosted university Admissions events.** Held lead role in organizing and hosting in-person and virtual Admissions events. Emcee'd student panel conversations with parents and prospective students.
- **Coordinated K–12 outreach.** Worked with faculty to organize visits with K–12 school partners.

Committee Service

2020–2021 **University Diversity, Equity, and Inclusion Task Force Teaching and Learning Environment committee.** Co-chaired faculty/staff task force to develop recommendations for campus support of equitable student outcomes in teaching and learning.

Summer 2020 **Delivering Labs and Studios COVID-19 response task force.** Led committee to develop guidance for campus in-person laboratory and studios courses in Fall 2020 semester.

2018–2023 **University Academic Technology Committee.** Co-chaired with university CIO campus faculty/staff committee. Evaluated and supported adoption of educational technologies.

2018–2023 **JED Campus Team and Faculty Engagement Mental Health Task Force.** Served on campus-wide and faculty-facing teams to develop university responses to ameliorate the student mental health crisis (which, sadly, pre-dated Covid).

Funding Awarded as PI

Total external funding raised as PI is $5.5M.

Awarded at UT San Antonio

2025 **$203,066, National Science Foundation, DRL-2524230**, "Collaborative Research: EducateAI: Building Capacity for Teacher and Student AI Fluency in Middle Schools in Texas and New York," PI and collaborative lead of NSF submission to build middle school teacher and student fluency in AI with school districts in Texas (Northside ISD in San Antonio) and New York (Schenectady City Schools). Total project award with DRL-2524231 is $317,437.

2023 **$235,723, National Science Foundation, IIS-2112633**, "AI Institute for Collaborative Assistance and Responsive Interaction for Networked Groups (AI-CARING)," PI of subaward for my work in AI education as part of the NSF AI-CARING AI Institute.

Federal Awards at UMass Lowell

2020 **$114,626, National Science Foundation, CNS-1923452**, Supplement to "Collaborative Research: CS Pathways RPP: A District Ownership-based Approach to Middle School Computer Science," to address teaching computer science remotely.

2019 **$573,134, National Science Foundation, CNS-1923452**, "Collaborative Research: CS Pathways RPP: A District Ownership-based Approach to Middle School Computer Science." Lead PI of two-institution collaborative award totaling $1M.

2014 **$1,198,639, National Science Foundation, DRL-1433592**, "Middle School Pathways in Computer Science."

2012 **$106,498, National Science Foundation, DUE-1225719**, "Collaborative Research: Computational Thinking Through Mobile Computing."

2011 **$1,057,626, National Science Foundation, IIS-1123972**, "DIP: Collaborative Research: Transforming Science Learning with an Interactive Web Environment for Data Sharing and Visualization."

2007 **$407,797, National Science Foundation, DRL-0735597**, "Collaborative Research: Internet System for Networked Sensor Experimentation."

2006 **$715,103, National Science Foundation, DRL-0624669**, "iCODE: Building an Internet Community of Design Engineers."

2006 **$599,943, National Science Foundation, DRL-0546513**, "Embedded Computing and Authentic Inquiry in Middle School Science," an Early Career Development award.

Foundation and Industrial Awards at UMass Lowell

2022 **$4,000, SIGCSE**, "A participatory approach to integrating machine learning into core subjects: Evidence from in-service teachers" with Ismaila Sanusi

2013 **$14,000, Google**, "CS4HS 2013: Computer Science for High School Teacher Conference"

2012 **$39,795, Google**, "Video Analytics on Android for High School Science Projects"

2012 **$14,000, Google**, "CS4HS 2012: Computer Science for High School Teacher Conference"

2012 **$15,000, Computer Science Teachers Association, Association of Computing Machinery**, additional donation to support CS4HS 2012

2012 **$35,000, Google**, "Google Community Gallery 2012 for MIT App Inventor"

2011 **$15,000, Google**, "CS4HS 2011: Computer Science for High School Teacher Conference"

2011 **$50,000, Google**, "Google Community Gallery for MIT App Inventor"

2009 **$35,000, Google**, "Android Phone as Mobile Data Gatherer for iSENSE Science Education Network"

2006 **$10,000, Schlumberger SEED Foundation**, "Using the Atmel Butterfly for Data Collection in Children's Science Projects"

2006 **$25,000, Analog Devices, Inc.**, "Development of an Undergraduate Course in Robotics and Controls Using the BlackFin Handy Board and LabVIEW"

2005 **$2,900, Analog Devices, Inc.**, "Blackfin Handy Board"

2004 **$1,000, OnTarget Challenge, Inc.**, "Development of Audio-Visual Feedback Device for Use in Law Enforcement Officer Performance and Reaction Drill"

2004 **$12,500, SRI International**, "Vulcan Halo Phase II Project"

Funding Awarded as co-PI

Awarded at UMass Lowell

2019 **$499,366, National Science Foundation, HRD-1841701**, "RCN: Developing a Multi-Institution Research-Practitioner Network to Enhance the Success of Diverse Students in Computer Science and Engineering From High School to the Workforce," PI Nilanjana Dasgupta, UMass Amherst.

2009 **$2,350,875, National Science Foundation, DGE-0841392**, "New, GK-12: Vibes and Waves in Action: A Cross-Disciplinary Collaborative Network for GK-12 Education," PI Kavitha Chandra, UMass Lowell.

2009 **$289,999, National Science Foundation, DUE-0920574**, "Circles: Community and Industry Reaching into Computer, Lab & Engineering Sciences," PI John Duffy, UMass Lowell.

2007 **$421,087, National Science Foundation, CNS-0722161**, "CPATH CB: Performamatics: Connecting Computer Science to the Performing, Fine, and Design Arts," PI Jesse Heines, UMass Lowell.

2006 **$457,376, National Science Foundation, CNS-0540564**, "BPC-DP: Collaborative Computing Experiences to Broaden Participation in Computer Science," PI Holly Yanco, UMass Lowell.

Accomplishments since joining UT San Antonio highlighted in blue.

Awards

2025 **Senior Member**, **Association for Computing Machinery (ACM).**

2022 **AAAI/EAAI Outstanding Educator Award**, Association for the Advancement of Artificial Intelligence / Educational Advances in AI. Team award for AI4K12.org Initiative.

2009 **Pasquale Faculty Award for the Advancement of Teaching and Learning in the Sciences**, UMass Lowell College of Sciences.

2007 **President's Public Service Award**, University of Massachusetts.

2006 **Faculty Career Development Award**, National Science Foundation, Arlington, VA.

Selected Service

UTSA, Department, and Community

2025 **AI For Everyone! summer camp**, Created and led 4-day summer camp which introduced 33 San Antonio area middle school students to ideas in artificial intelligence. Held in the San Pedro I building in June 2025; `https://tinyurl.com/aiforallcamp2025`

2024–2025 **CCP Search Committee**, for Bilingual and Bicultural STEM Education cluster as part of university Strategic Faculty Hiring initiative.

2024-2025 **THRIVE Cohort 2 Lead**, Applied for and received invitation to join Cohort 2 of the NSF THRIVE project led out of UT-RGV to improve the work environment for Latina STEM faculty. Recruited UTSA colleagues Mauricio Gomez, Jianhua Ruan, Hend Alkittawi, and Terri Matiella to join our team.

2024 **"The Thinking Game"**, organized pre-release screening of the feature film on the development of DeepMind's AI technologies at San Pedro I, with a faculty panel discussion and attended by 35 students, alumni, faculty, and staff, October 11, 2024.

2024 **Podcast for TechGuide**, recorded 27-min interview for Episode 64 of the TechGuide podcast series promotion UTSA and computer science, published September 4, 2024 at `techguide.org/podcast/fred-martin`.

2024 **High School outreach**, led conversation / presentation with approx. 60 high school students at Champion HS in Boerne ISD about career pathways in cybersecurity and computer science. August 21, 2024.

2024; 2025 **Bold Beginnings**, gave presentation "How to Teach at UTSA: A Chair's Perspective" and led conversation with incoming faculty members, August 8, 2024 and August 7, 2025.

2023 **Postdoctoral Mentor of the Year Award committee member**, UTSA Office of Postdoctoral Affairs, September 2023.

2023 **Alamo AFCEA August Luncheon Speaker**, gave presentation "UTSA Computer Science: Partners for AI & Cyber Talent" at Alamo Chapter of the Armed Forces Communications and Electronics Association International (AFCEA), August 15, 2023.

Professional

2025– **NSSME+ advisory board member**, supporting Horizon Research in development of the 2027 NSSME+ survey of K–12 science, mathematics, computer science, and engineering (STEM) education to inform educators, researchers, and policymakers.

2023–2025 **External P/T reviewer**, for three promotion and tenure cases: University of Toronto; University of Louisana at Lafayette; and the University of New Mexico.

2023–2025 **Main track co-chair**, for the 14th and 15th Symposium on Educational Advances in Artificial Intelligence (EAAI), co-located with the Annual AAAI Conference on Artificial Intelligence.

2024 **Louisiana Board of Regents external reviewer**, for a proposal for the University of Louisiana at Lafayette (ULL) to establish a PhD in Applied Computing and Information Sciences.

2023– **Advisory board member for two NSF projects**, StoryQII (Concord Consortium, Concord MA) and Developing AI Learning Trajectories as a Basis for Effective AI Activities and Tools (New Mexico State University).

2008– **NSF Panelist**, including DRK12, STEM+C, IUSE, ITEST, REU, others; 1–2 panels per year. At UTSA: 1 full panel review and 1 ad hoc review.

2018–2023 **ACM Special Awards Judge**, Intel/Regeneron International Science and Engineering Fair (ISEF).

Journal Article reviewer, including International Journal of Human Computer Interaction, Journal of the Learning Sciences, AI Magazine, AI and Ethics, Communications of the ACM, ACM Inroads, Transactions on Computing Education, Transactions on Software Engineering, Computer Science Education, others (3–5 articles per year). At UTSA: International Journal of Artificial Intelligence in Education (2 papers); Journal of Computer Science Education (1 paper); Transactions on Computing Education (1 paper).

Conference Paper reviewer, including SIGCSE, EAAI, IDC, International Conference on Computational Thinking. At UTSA: IEEE Frontiers in Education (2 papers); EAAI Model Assignments (3 projects).

2014–2020 **Computer Science Teachers Association**, Chicago, IL Elected board member, 2014–2016 and 2016–2018; chair of the board, 2017–2019.

2016 **External program reviewer**, Bridgewater State University (Massachusetts), Computer Science department, MS program.

2016 **External program reviewer**, University of New Hampshire Manchester, Computer Science department, BS in Computer Science and Entrepreneurship program.

2015–2016 **K–12 standards development panelist**, Massachusetts Department of Elementary and Secondary Education (DESE), developing K–12 standards for Digital Literacy and Computer Science. Standards were adopted by the Commonwealth on June 28, 2016.

Publications

110 publications including 19 journal articles, 61 peer-reviewed conference papers, 1 book, 7 book chapters, and 8 professional magazine articles. Full list available at : `https://scholar.google.com/citations?user=rqpdaP0AAAAJ`.

Google Scholar h-index of 37 with 8,760 citations (December 20, 2025)
Scopus h-index of 18 with 3,043 citations (December 20, 2025)

Work at UT San Antonio with students* and colleagues† highlighted

Selected widely cited papers

Lee, I., **Martin, F.**, Denner, J., Coulter, W., Allan, Erickson, J., Malyn-Smith, J., Werner, L. (2011). "Computational thinking for youth in practice." *ACM Inroads*, **2**(1), pp 32–37, March 2011.

Touretzky, D., Gardner-McCune, C., **Martin, F.**, and Seehorn, D. (2019). "Envisioning AI for K-12: What should every child know about AI?" In *Proceedings of the Thirty-Third AAAI Conference on Artificial Intelligence*, January 27-February 1, 2019, Honolulu, HI.

Martin, F.G. (2012). "Will massive open online courses change how we teach?" *Communications of the ACM*, **55**(8), p. 26–28.

Sherman, M. and **Martin, F.** (2015). "The assessment of mobile computational thinking." *Journal of Computing Sciences in Colleges*, **30**(6), June 2015, p. 53–59.

Furey, H. and **Martin, F.** (2018). "AI education matters: A modular approach to AI ethics education." *AI Matters*, 4(4), 13–15.

Refereed Journals (19)

Saniya Vahedian Movahed* and **Fred Martin** (2025). "Ask Me Anything: Exploring Children's Attitudes Toward an Age-tailored AI-powered Chatbot." *International Journal of Artificial Intelligence in Education*, Springer Nature. `https://doi.org/10.1007/s40593-025-00523-4`.

Sanusi, I.T., **Martin, F.**, Ma, R., Gonzales, J.E., Mahipal, V., Oyelere, S.S., Suhonen, J. and Tukiainen, M. (2024). "AI MyData: Fostering Middle School Students' Engagement with Machine Learning through an Ethics-Infused AI Curriculum." *ACM Trans. Comput. Educ.* **24**, 4. `https://doi.org/10.1145/3702242`.

Ni, L., Bausch, G., Thomas-Cappello, E., **Martin, F.**, and Feliciano, B. (2024). "Creating Apps for Community and Social Good: Preliminary Learning Outcomes from a Middle School Computer Science Curriculum." *ACM Trans. Comput. Educ.* **24**, 3, `https://doi.org/10.1145/3658674`.

Lee, I., Grover, S., **Martin, F.**, Pillai, S., & Malyn-Smith, J. (2020). "Computational thinking from a disciplinary perspective: Integrating computational thinking in k-12 science, technology, engineering, and mathematics education." *Journal of Science Education and Technology*, **29**(1), 1–8.

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Refereed Conference Proceedings (61)

Kayleigh Stallings*, Nicole Tian*, Elif Ercek*, Haven Kotara*, Devin Marinelli*, Pragathi Durga Rajarajan*, Daniel Schumacher*, Ismaila Sanusi†, and **Fred Martin**. (2026, in press). AI for Everyone: Engaging Middle Schoolers through Collaborative, Ethical, and Multimodal AI Learning. To appear in *Proceedings of the 57th ACM Technical Symposium on Computer Science Education V.1 (SIGCSE TS 2026)*, February 18–21, 2026, St. Louis, MO, USA. Association for Computing Machinery, New York, NY, USA, 7 pages. doi:10.1145/3770762.3772627.

Ismaila Temitayo Sanusi†, Deepti Tagare†, and **Fred Martin**. (2026, in press). A Research Course to

Develop AI Tools for K–12 Learning. To appear in *Proceedings of the 57th ACM Technical Symposium on Computer Science Education*. ACM, New York, NY, USA. doi:10.1145/3770762.3772631

Pragathi Durga Rajarajan* and **Fred Martin**. (2026, in press). On Teaching Image Recognition to Children at a Summer Camp. To appear in *Proceedings of the 57th ACM Technical Symposium on Computer Science Education*. ACM, New York, NY, USA. doi:10.1145/3770762.3772635

Saniya Vahedian Movahed* and **Fred Martin** (2025). "From Play to Pedagogy: Discovering the Ecosystem of AI Educational Tools and Curricula." In *Proceedings of the 2025 Conference on Innovation and Technology in Computer Science Education (ITiCSE '25)*, Association for Computing Machinery, New York, NY, USA. ***Nominated for Best Paper award.***

Pragathi Durga Rajaran* and **Fred Martin** (2025). "IntoTheRabbitHole: A Web Application for Teaching Middle School Students About Search Algorithms" In *Proceedings of the 2025 Conference on Innovation and Technology in Computer Science Education (ITiCSE '25)*, Association for Computing Machinery, New York, NY, USA. ***Nominated for Best Paper award.***

Saniya Vahedian Movahed* and **Fred Martin** (2025). "From Pre-Conceptions to Theories: How Middle School Student Ideas about Predictive Text Evolve after Interaction with a New Software Tool." In *CHI Extended Abstracts '25.* ACM, New York, NY, USA.

Pragathi Durga Rajarajan* and **Fred Martin** (2025). "FaunaForest: A Novel Software Tool for Teaching Decision Trees to Middle School Students." In *2025 IEEE Integrated STEM Education Conference (ISEC)*, Princeton, NJ, USA, 2025.

Yeshaswini Parvatham*, Aishat Kolawole* and **Fred Martin** (2025). "ClawAI: A Software Tool Teaching Text Classification and AI Systems to Middle School Students." In *IEEE ISEC*, Princeton, NJ, USA, 2025.

Ismaila Temitayo Sanusi†, Marissa Muñoz†, Ruizhe Ma, and **Fred Martin** (2025). "Teacher Education for Data Science: How Teachers Integrate Data Science into Their Instruction for Middle-Grades Learners." In *IEEE ISEC*, Princeton, NJ, USA, 2025.

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Books (1)

Martin, F. (2001). *Robotic Explorations: A Hands-On Introduction to Engineering.* Prentice-Hall.

Professional Magazines (8)

Martin, F.G. (2016). "Computational Thinking is a model-eliciting activity." *CSTA Voice*, 12(1), March 2016, p. 8.

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Workshop Papers (5)

Feliciano, B., Ni, L., **Martin, F.G.**, Bausch, G., White, P, & Hsu, H. (2021). One-on-one meetings as Boundary Practices: Managing RPP Computer Science Curriculum Co-design. In *CSforALL & SageFox Consulting Group (Eds.), The intersection of RPPs and BPC in CS education.* `https://par.nsf.gov/servlets/purl/10351381`.

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Other (9)

Martin, F. (2019). "AI is automated decision-making, and it accelerates century-old algorithmic methods." *CSTA Advocate*, `http://advocate.csteachers.org/2019/04/22/ai-is-automated-decision-making-and-it-accelerates-century-old-algorithmic-methods/`.

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Teaching

A prolific 24-year career developing and teaching undergrad and grad CS and interdisciplinary courses:

- **Core curriculum**—C++ programming, architecture, operating systems
- **Electives**—robotics, software engineering, artificial intelligence, languages
- **Interdisciplinary**—interaction design, "artbotics," app design

At UTSA, I introduced "Developing AI Tools for K–12," where students create novel software tools which introduce concepts in AI/ML and conduct education impact studies with K–12 learners.

Thesis Students Supervised

At UTSA, supervising three doctoral students (Kayleigh Stallings, Nicole Tian, and John Weaver), one master's student (Haven Kotara), and one undergraduate research student (Durga Rajarajan).

PhD

2017 **Mark Sherman**, Detecting student progress during programming activities by analyzing edit operations on their blocks-based programs.

2014 **Derrell Lipman**, LearnCS! a browser-based research platform for CS1 and studying the role of instruction of debugging from early in the course.

2014 **Haiyang Zhang**, Exploiting many-core processors to optimize the performance of simultaneous localization and mapping.

Master's

2022 **Vaishali Mahipal**, DoodleIt: Introducing middle school students to image recognition.

2016 **Farzeen Harunani**, AppVis: Enabling data-rich apps in app inventor.

2013 **Ramya Srinatha**, Student analytics for course recommendation.

2012 **Christopher Granz**, μPINPoint: An inexpensive data logger for scientific experimentation and education.

2011 **Michael Penta**, Video game creation as a platform for mathematical learning.

2011 **John Fertitta**, Design and evaluation of dedicated smartphone applications for collaborative science education.

2011 **Derrell Lipman**, Liberated: A fully in-browser client *and* server web application debug and test environment.

2010 **James Dalphond**, Design and evaluation of an Internet based data repository and visualization system for science education.

2010 **Mark Sherman**, Exploration of the natural design strategies of novice engineers.

Technologies Developed

2019– **MYR**, a browser-based programming environment for beginning programmers to enjoy artistic expression by creating virtual reality scenes, `learnmyr.org`

2007– **iSENSE**, a cloud-hosted, browser-based data sharing and visualization platform, for middle and high school math, science, and data science education, `isenseproject.org`

1987–2000 **Programmable Bricks**, handheld robot controllers with coding environments, leading LEGO Mindstorms in 2000 and worldwide use of my "Handy Board" design