

Ed Barker

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Aerospace + Software + Electrical Engineering

EDUCATION

Georgia Institute of Technology , Atlanta, Georgia	August 2026
to Present	

PhD Student, Aerospace Engineering, ASDL – Aerospace Systems Design Lab

Georgia Institute of Technology, Atlanta, Georgia
MS, Aerospace Engineering

Georgia Institute of Technology, Atlanta, Georgia
MS, History and Sociology

Georgia Institute of Technology, Atlanta, Georgia
MS, Public Policy

Kennesaw State University, Kennesaw Georgia
Educational Research

University of South Carolina, Columbia SC
BS, Electrical and Computer Engineering

Stanford Online - Coursera Certificate Programs, Stanford California
Machine Learning, ML, Deep Learning, AI

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PROFESSIONAL EXPERIENCE

L3Harris Technologies Inc **Lead Software Engineer**

Special Projects

- Developing solutions to incorporate Artificial Intelligence systems, AI/ML LLMs into engineering simulation and development pipelines.

Space Systems - Space Development Agency (SDA)

- Lead Engineer for the design, development, and implementation of software and systems for the Space Defense Agency Tranche 1 missile defense program.

Space Systems - NOAA Satellite Programs

- Contributor to the development and deployment of ground-based systems to support operational reliability of GOES satellite to ground communications integrity.

Space Systems - IRAD

- Software architect for RF sensors to be flown on a GEO satellite. Applications include space based ELINT, EW, and other uses.

DoD - DoW

- **F-35** - Lead for developing systems that lead to the test and verification of the F-35 TR3 Open System Architecture (OSA)-based Mission Avionics System, from system creation all the way through to handoff for flight test.
- **C-130, B-52, C-27** - Design verification work for new avionics systems for these modernization programs

NASA T-38

- Prime software engineer for the modernization of the primary flight display and engine flight computer of the NASA T-38 astronaut training and flight proficiency aircraft.

Kennesaw State University **Assistant Director for Advanced Research Computing**

- Directed implementation of High-Performance Computing (HPC) infrastructure to support university-wide research initiatives in computational modeling and simulation.

E-Systems, Melpar - (now *RTX (Raytheon Intelligence & Space)*)

Senior Engineer & Project Manager

- Designed and developed solutions for SIGINT, COMINT, and ELINT systems across satellite and airborne platforms.
- Engineered high-performance RF receiver systems for intelligence platforms, including Senior Year U-2 and RC-135 Rivet Joint programs

Georgia Institute of Technology – Aerospace Systems Design Lab (ASDL)

Graduate Research

- Researching methods to enable MBSE pipelines toward building digital twins for aerospace systems, using AI / ML systems and support interoperability objectives central to DoD and Space Development Agency space-system development initiatives.
 - PhD research concentration on includes ***satellite constellation design and optimization theory***.
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Independent Researcher – Public Policy Analysis

- Conduct targeted research on federal policy and STEM workforce development, with a focus on initiatives from agencies such as NASA, DoD, and the Office of Science and Technology Policy (OSTP).
- Examine the historical evolution of federal science and technology frameworks that underpin U.S. strategic leadership in space, aerospace innovation, and critical technical capabilities for national defense and economic development.
- Analyze federal investments in STEM education and workforce pipeline programs aligned that align with national objectives.

NON-PROFIT ORGANIZATION AND SOCIAL ENTERPRISE SECTOR EXPERIENCE

Leadership & Communications – Policy and Social Enterprise Sectors

Leader and problem solver working at the intersection of the public, private, and non-profit sectors. Experienced in analyzing and communicating complex issues to decision makers and stakeholders, creating solutions and implementation strategies in complex policy environments

STEM Leadership Foundation, Kennesaw, GA
2012 - Present

November

President and Founder

- The STEM Leadership Foundation, a 501(c)3 non-profit corporation, works to develop a deeper understanding of the evolving economy and its impact on 21st century STEM education. The foundation works to support a variety of initiatives, including supporting informal STEM learning by supporting students and teachers that participate in the FIRST Robotics Competition and other extra and co-curricular STEM development pipelines.

NATIONAL SCIENCE TEACHER ASSOCIATION, Arlington, VA
May 2018

June 2015 –

Informal Science Education Directorate, Committee Member

- The committee is responsible for reviewing all NSTA policies, programs, and activities relating to informal science education and see that the interests of informal science educators are served by the Association. This committee works with other NSTA Division Committees on K–16 coordination and additional charges as directed by the President, requested by the Board of Directors, or initiated by the Committee and approved by the Board of Directors.

ENTERPRISE EFFECTIVENESS

- **Briefings include:**
 - National Science Board leadership, a part of the Office of Science and Technology Policy (OSTP)
 - The U.S. Congressional Robotics Caucus
 - Multiple U.S. Senators and U.S. Congressmen, and their policy staff.
 - Georgia Governors, Lt. Governors, and their policy staff.
 - Georgia Tech Research Institute – creating organizational continuity into the next generation of leaders.

MENTORING & TEACHING EXPERIENCE

The Kell High School Robotics Team, Kennesaw, GA

August 2005 – May 2023

Informal Educator, Senior Mentor

- Directed the Kell Robotics team, a high school team that participates in the **FIRST Robotics Competition**, to earn the *FIRST* Championship Chairman's Award, and subsequent induction into the *FIRST* Hall of Fame. Kell Robotics is the 28th team in history to earn this distinction and is recognized as a model team for the 615,000+ students on 72,000 teams in over 100 countries that participate in *FIRST*.
- The *FIRST* Chairman's Award is the most important award that is given by *FIRST*. It recognizes the team that is exemplary in their efforts to advance society through STEM education. The Kell Robotics Team has led efforts to support education, by leading Georgia to create opportunities for teachers to receive extended day pay for coaching robotics teams after school, and by developing initiatives to provide teacher training in robotics and engineering.
- The team has started a record-setting 25 *FIRST* Robotics Teams in Georgia, and South Carolina, a third of those team are in Title 1 and underserved communities. Over the past decade, the team has met with policymakers and educational leaders, advocating about the value of supporting a *FIRST* robotics team in afterschool programs.
- The team earned the 2010 SeaWorld Busch Gardens Environmental Excellence Award, was selected as a 2011 MIT-Lemelson Inventeams and subsequently invited to the 2012 White House Science Fair to be recognized by President Barack Obama. The Kell Robotics team has produced three student leaders that have received international awards for leadership including the Dean's List Award and the Allaire Medal.
- 18 years' experience of volunteer teaching engineering and computer science in long-term informal settings

RECOGNITIONS

- NSTA (National Science Teachers Association) Faraday Science Communicator Award
- *FIRST* Hall of Fame, *FIRST* Championship Chairman's Award – Chief Team Mentor
- U.S. Presidential Awards for Excellence in Science, Mathematics & Engineering Mentoring – 2017 Nominee
- *FIRST* Woodie Flowers Award Finalist Award, named after Dr. Woodie Flowers, MIT Emeritus Professor
- National Center for Women & Information Technology Regional Mentor Award
- National Judge, Discovery Education / Siemens We Can Change the World Challenge
- 100 Black Men of Atlanta, Inspiration Award
- MIT K-12 Strategic Alliance Committee, Past Member
- United States Congressional Robotics Caucus briefing
- White House Science Fair, Lemelson-MIT InvenTeams, Chief Team Mentor
- SeaWorld Busch Gardens Environmental Excellence Award, Chief Team Mentor
- 2020 L3Harris Technology Innovation Award

CONFERENCE PRESENTATIONS

- 2018 NSTA National Conference Forum Host and Speaker – Teacher Development for the 21st Century
- *FIRST* Conference Presentations
 - Beyond *FIRST* – Real World Applications
 - MIT Mentorship Initiative video project
 - Students Perception of Engineering
 - Social Networking & Cultural Change
 - Women in Engineering
 - Beyond Advocacy: Growing *FIRST*® in a New 21st Century Education Model