

March 20, 2023

Dear Regent Syfan and Members of the Presidential Search Committee,

I was extremely pleased to learn from Susan DeWoody that I was nominated to be considered to serve as the 18th president of the University of North Georgia (UNG). Please accept this letter and my curriculum vitae as my submission of materials to be considered for this role. UNG, a State Leadership Institution and The Military College of Georgia, is an incredible university, steeped in tradition, with tremendous opportunity, value, and promise. As the next president, I will bring my experience, leadership, credibility, and values, coupled with vision, energy, innovation, and passion, to this university's next chapter. I cannot express how much I would love the opportunity to serve in this role.

American higher education is facing one of its most pivotal moments in history. Today, we see a combination of forces which together serve as a significant threat to the viability of the American university. First, there will be a 12% demographic decline in the number of 18-year-olds between 2025-2030 (EAB, 2023), meaning that there are fewer college-going students starting in 2025. Second, the college non-consumer market is growing at an unprecedented rate. Although the national high school graduation rate is growing by 7.2%, the college enrollment rate is dropping by 5.6%. The result is that 32% of 18- to 24-year-olds who graduate from high school don't enroll in college (EAB, 2023). The nonconsumption was exacerbated by the pandemic and is fueled by high school seniors abandoning college plans and the measurable effects of lost learning (EAB, 2023). We need to realize that the biggest competition to *any* institution may not be another institution, but rather these dynamics.

I understand the complexity of serving and leading a major university and taking on these challenges. For the past two plus years, I have been a part of leading the operations, business, decision-making, and strategy for Georgia Tech (GT), one of the most complex institutions in the University System of Georgia (USG), and the fastest-growing public research university in America. As the Interim Executive Vice President for Administration & Finance and Interim Chief Business Officer, I serve on GT's executive leadership team behind the president and the provost. I work with the president daily on the most critical issues, challenges, and opportunities facing GT, and oversee the operations and strategy of a \$2.6B enterprise composed of nearly 22,000 employees, serving approximately 46,000 students. I also hold a faculty appointment in the College of Engineering, currently teach at the graduate level, serve on graduate thesis committees (masters and Ph.D.), advise several students, and participate in school faculty activities. Additionally, I am a retired Army officer and served two times at the U.S. Military Academy attaining the academic rank of Assistant Professor of Physics and Nuclear Engineering.

Although higher education is facing one of the most challenging periods in its history, I cannot imagine any university better positioned than UNG to face those challenges. UNG has it all – an unparalleled regional and national brand, value in its academic programs, a vibrant multi-campus construct, an endorsement as a State Leadership Institution, and the honor of being one of six senior military colleges. Even with these incredible attributes, UNG's next president must have a vision that addresses how to elevate these attributes while living out the disruption in higher education, leading through it, and getting it right. Andy Stanley provides one of the most compelling concepts of vision, saying 'Vision is a picture of a preferred future.' Before you can develop this picture, you must be clear about what you stand for. As I consider setting vision in the role of university president, these guiding principles serve as my bedrock: (1) Invest in people, (2) Elevate the higher education value proposition, (3) Curate a transformative student experience, (4) Leverage philanthropy and entrepreneurship, and (5) Cultivate and grow leadership development. Over the next few pages, I present brief snapshots of how these guiding principles can collaboratively lead to a *picture of a preferred future*, and how my experiences align with the desired qualities for the next UNG President.

Invest in people.

To be clear, my focus is, and will always be, on *people*. The top priority of a university must be to deliver the highest quality and most transformative educational experiences possible to its students. I will be a president for *students*. My experience serving in higher education has taught me that at a university you get to be a part of students' lives. I saw this during my time teaching physics at West Point and training cadets. I also see this at GT, mentoring students through their dissertation research, as well as teaching courses. Currently, I see this as an executive leader whose daily decisions impact thousands of students. In all instances, I have learned that we have an awesome responsibility to help shape the direction of a student's life. Students first and always.

The lynchpin of academic excellence is ensuring that faculty are enabled and empowered to do the core work of the university – teaching, scholarship, service – and deliver student success. I will be a president for *faculty*. We, as leaders, must do everything we can to ensure faculty can deliver their very best to our students. Much like Chancellor Purdue's emphasis on Jim Collins' flywheel concept for the USG, if we deliver the best experiences to our faculty, they will in turn do the same with our students. Thus, we will create cycles of excellence and high performance. I am excited to work with my colleagues to set the conditions for faculty to expand their careers and become the best versions of themselves as they deliver teaching, scholarship, and service to students and the university. In doing so, I will lead from the front in ensuring my faculty colleagues have voice, are enabled, and have the best resources available to deliver outcomes which lead to student success.

Often, a university's staff are the forgotten members of the team. Staff members are the tireless professionals who make the institution work. From academic advisors and student success coordinators to plumbers and police officers, the staff are integral to ensuring that the institution delivers to students every day. I will be a president for *staff*. This is a perspective I embrace with experience and passion, as I currently lead a team of over 1700 staff members. I am zealous about staff compensation and development to ensure we help build fulfilling careers that matter. Additionally, I fervently enjoy partnering with Staff Council to help develop the best workplace possible. My work with GT Staff Council is one of the best parts of my job. I treasure our shared commitment to people.

Elevate the higher education value proposition.

A university's value proposition is based on three fundamental questions – What is different about this university? Why would a student want to attend this university? If this university disappeared, would the community be changed? The president's role is to lead the conversation to determine not only what makes the institution unique but also to think predictively, to look to the opportunities which lie ahead, and to explore the fundamental reasons why students desire to attend the institution. Students today are clamoring for transformative experiences which take the classroom and bring it to life. As Ken Coleman said, students inherently desire to be "trailblazers, not test takers." From my experience, trailblazing is forged on the anvil of curiosity and human thought and led by strong, vibrant mentors. Transformative teaching and learning should be critical to the experience of every student, delivered through opportunities to discover, such as research. I believe the university must consistently evaluate its role in research. If executed in a collaborative way, increased research can enhance the training of students, elevate academic excellence, and thus improve the student experience. Research enriches institutional pedigree, sets the course for the institution to serve as a convener, and brings opportunities for outside investment. As president I will partner with faculty colleagues to create an ecosystem that will set the conditions for investment in research, which will lead to philanthropy, new revenue streams, enhanced student experiences, and thus an overall elevated institutional value proposition.

The local community and region are critical to the success of the institution, and the institution needs to be critical to the success of the local community and the region. The president must partner with students, faculty, staff and the community to strengthen these dependencies, develop local industries, build community, and therefore support the quality of life of the region. Together, they must create shared pipelines in which the institution and the local community work hand in hand to improve access (enrollment), outcomes (student success and retention), and stimulate economic development (research and graduate placement). The institution can create value through

stimulating jobs, improving workforce retention, spawning small business, and creating the conditions for entrepreneurship. I will be a president for the *community*. From my experience working with community and local stakeholders, the common thread running through these interactions is relationship. In each relationship, you start with trust which leads to transparency which sets the conditions for transformation. This formula has proven successful time and again. Fundamental to positive community relationships is understanding the role the university has in the region to develop talent, which helps local industries and businesses succeed. I witnessed this firsthand as a consumer of talent in small business, seeing the critical need to develop talent for the workforce. I experienced the struggle of learning that talent has options and found that working with local universities made the difference. We established internships, trusted relationships and created a strong private sector-university partnership. The institution must galvanize the community, *across all campuses*, adding to its own value proposition.

Curate a transformative student experience.

The college years are uniquely formative. My vision is that the university should create experiences that cultivate curiosity, unlock in every student what they don't know about themselves, and help every student determine the best version of themselves. Students of today face anxiety, depression, suicidal ideation, substance misuse, and eating disorders. Student mental health is at a staggeringly low level. Due to many factors - the pandemic, pervasive technology, and a lack of agency - students today struggle with who they are. I believe we need to attack this issue by teaching our students to build resilience and self-awareness through co-curricular learning. This would give students skill-based approaches and also teach them to identify values greater than themselves. This combination is the cornerstone of a transformative student experience.

I have spent a great deal of time contemplating what student success really means. Today's Generation Z students have experienced hectic, fragmented teenage years. Technology has moved people inside and reduced face-to-face interactions. Social media drives a distorted view of personal values. Challenges abound, but opportunity remains. The president must rally the entire university community to create a more compelling, vibrant, and curated student experience. Students need to be engaged and excited by a 24- to 60-month transformative experience that is high impact, co-curricular, and accountable. The experience must be challenging but also fun, relevant, and responsive to the cries of this generation. It needs to leverage the attributes of college that make it special – academics, discovery, leadership, place, athletics, internships, entrepreneurship, and relationships – *across the uniqueness of all campuses*. It needs to energize the arts and leverage athletics. It needs to orchestrate memories and experiences that last a lifetime. Ultimately, the student experience must ensure the very best of the higher education value proposition – changing the trajectory of the lives of students and their family trees.

Leverage philanthropy and entrepreneurship.

One of the key roles of the president is to strategically lead philanthropy and entrepreneurship to elevate the university. The president must have the skills, passion, energy, and excitement to serve the institution as its chief storyteller and fundraiser. Fundraising must be mission-driven and create new economies for the institution. It must set the conditions for the university for the next 10 years and ultimately for the next 100 years. Donor relations call for storytelling, passion, and inspiration. It's about being visionary, engaging, effective in communication, and exceptional in relationship building. Alumni are critical but the institution also needs to think broadly. Philanthropy should be coupled with entrepreneurship to make connections that increase the value of both donor gifts and institutional resources. The president must think creatively and work collaboratively to deliver innovative solutions. This entrepreneurial leadership means leveraging the institution to partner with the local community and the private markets to meet institutional objectives and market needs.

My experience has afforded me world-class training and opportunities to observe what right looks like. For the past two years at GT, I have worked alongside the president and provost in the creation and launch of Transforming Tomorrow: The Campaign for Georgia Tech, a \$2B+ campaign which launched its public phase in summer 2022, reached \$1B in March 2023, and continues to grow. I currently lead the strategy within the

Campaign for capital projects as well as our “military friendly institution initiatives.” I am routinely engaged in donor relations. I have been responsible for closing a \$25M gift which is critical to a major GT strategic goal; a gift to endow our newly established GT Veteran’s Flag program; and I am currently working with the president in closing a \$60M gift which will represent GT’s big bet in game-changing cell therapy manufacturing technology. In addition, I have a substantial role with the GT Foundation (GTF) which manages the GT endowment (and real estate interests) totaling roughly \$3B in assets. Serving on GTF’s Executive Committee, I work daily with the GTF Treasurer, President, and Chief Financial Officer to manage the endowment’s unrestricted budget (one of the largest among public universities), the assets within the GTF Funding Corp., and other assets. We work to enable cash flow, serve as a backstop on capital projects, and leverage the strength of GTF’s balance sheet to create better buying power for GT. This work increases our ability to elevate GT’s position and deliver more to students.

Cultivate and grow leadership development.

In addition to academic programs and a transformative student experience, the president must create an environment for leadership development. The opportunity to instill in a student the ability to inspire, motivate, and influence others is a tremendous calling. Further, creating opportunities for faculty and staff to build leadership skills is critical to the future of the institution. My view is that the university should have a leadership mill, where leaders are forged through education, training, and experience. This is work that I am passionate about, and I am ready to unify the entire institution to align and deliver.

One of the crown jewels of UNG is the Corps of Cadets, its designation as one of only six senior military colleges in America, and its leadership development programs. The Corps is special; it is prestigious; and it is something I will take very seriously. I will be a president for the *Corps of Cadets*. Leadership development has been a hallmark of my career. I understand what it means to be a cadet and to attend college full-time while simultaneously training to become an Army officer. I know the hardship of deployments, the fear of being far from home and close to the enemy, and the struggle of saying goodbye to family...many times. I am a veteran, and my wife is a veteran who attended college on the G.I. Bill. I am a military academic and leadership educator and have firsthand experience blending the delivery of collegiate academics with the development of Army leaders. I believe that my experience as a higher education leader, as a faculty member, as a career Army officer, and as a leader within USG, can combine to create the conditions for UNG to be the lodestar for leadership development in Georgia.

The presidential profile calls for the next UNG president to be “a highly visible, transparent, and visionary leader, engaged listener, effective communicator, and exceptional relationship builder.” My nearly three-decade career has demonstrated these qualities. I am energetic and passionate. I set vision; I influence; and I watch the outcomes. I know how to set the tempo and drive direction. I lead from the front and get out of the way. I give my teammates ownership, which leads to performance. I share, and I inform. I have a high tolerance for ambiguity and the ability to navigate complexity with ease. I establish unbreakable bonds and prioritize relationships. I listen and show people they have value. I think big; I innovate; and I believe in tomorrow. I am proud to have led multiple teams which have accomplished unparalleled objectives. I lead, and I serve.

The University of North Georgia is a special place, and I am so grateful for the opportunity to be considered for this role. In these pages, I have presented a summary of the guiding principles which serve as my bedrock. I believe that my experience, my fit, and the profound passion I will bring to this role align with the leadership needs outlined. I would be honored to serve the University of North Georgia as its next president and deliver this *picture of a preferred future*. Thank you for your consideration.

Sincerely,



Michael P. Shannon, Ph.D.

Works Cited

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Collins, Jim. (2019). *Turning the Flywheel: A Monograph to Accompany Good to Great (Good to Great, 6)*. Harper Business.

EAB Research Strategic Advisory Services. (March 2023). *Undergrad Enrollment Analysis*.

Stanley, Andy. (2012). *Visioneering: Your Guide for Discovering and Maintaining Personal Vision*. Multnomah.

Michael P. Shannon

Georgia Institute of Technology
North Avenue
Atlanta, GA 30332
michael.shannon@gatech.edu

4508 Sterling Pointe Drive NW
Kennesaw, GA 30152

PROFESSIONAL HIGHLIGHTS

Serve as the Georgia Institute of Technology Interim Executive Vice President for Administration & Finance (A&F) and Interim Chief Business Officer, the 3rd ranking position in the administrative leadership team behind the president and the provost. Provide direct coordination with the USG Chief Operating Officer, Chief Fiscal Officer and members of the USO staff.

Serve on multiple boards including the GT Foundation, the GT Athletic Association, Alexander Tharpe Fund, GT Global, Georgia Advanced Technology Ventures, Inc., and the Midtown Alliance.

Serve as a member of the Georgia Tech faculty holding an appointment in the George Woodruff School of Mechanical Engineering.

Serve as an executive sponsor on the development of Georgia Tech's Quality Enhancement Plan (QEP) for SACSOC accreditation.

Serve as an executive leader responsible for the implementation of the Georgia Tech Strategic Plan. Co-lead, with the provost and chief of staff, GT's highest priority initiatives – *Growth Management* and *Administrative Reform and Shared Responsibility*.

In collaboration with the provost and chief development officer, support the president in delivering Transforming Tomorrow: The Campaign for Georgia Tech, a \$2B+ campaign.

Serve on a Centers for Disease Control and Prevention (CDC) Emergency Response Task Force as a subject matter expert enhancing the CDC's technical ability to respond to public health emergencies.

Active Top Secret security clearance with access to Sensitive Compartmented Information (SCI) under a Single Scope Background Investigation (SSBI).

Led the development and delivery of administrative shared services at Georgia Tech through extensive collaboration with USG. Delivered a new unit, the Administrative Services Center, the point of execution of the model.

Served as principal investigator and lead faculty member for \$30M+ in research grants and contracts in four years (2016-2020).

Served as Vice President and Deputy Chief Business Officer of Georgia Tech. Served as chief advisor, counselor and second-in-command to the Executive Vice President for Administration & Finance and the A&F leadership team.

Led the establishment of the Georgia Tech CLIA laboratory. Notably led and established the Georgia Tech Covid-19 testing effort (provided testing for Georgia Tech and the 156th and 157th Georgia General Assembly, in collaboration with Northeast Georgia Health System, NGHS).

Led the research team and served as the lead principal investigator on “*GT Saliva Collection Kit for the SARS-CoV-2 Virus*” an FDA Emergency Use Authorization approved Covid-19 test.

Co-led team which developed Covid-19 testing capabilities for the State of Georgia. Worked under the direction of Governor Kemp’s office in support of the Department of Public Health.

Created and led a division (30+ faculty members) within Georgia Tech Research Institute (GTRI) focused on developing military technologies for special operations.

Served as the vice president of a small technology company. Served as a member of the executive leadership team. Led all sales, marketing, science & technology, and strategic development activities.

Served as a program manager and delivered rapid, high-risk/high-payoff capabilities for the special operations mission in the Global War on Terrorism. Managed \$60M+ annual budget and 800+ contractors and military personnel.

Served as a supporting advisor to the U.S. Naval Academy in its ABET (Accreditation Board for Engineering and Technology) accreditation process of its nuclear engineering program.

Served as the Director of the Defense Threat Reduction Agency (DTRA) Nuclear Science and Engineering Research Center at West Point.

Served as a Research Scientist and Deputy Director of the Defense Threat Reduction Agency (DTRA) Nuclear Science and Engineering Research Center at West Point.

Served as Assistant Professor of Physics and Nuclear Engineering at the United States Military Academy. Developed and taught multiple courses and curriculum. Directed and led several efforts for ABET accreditation of the nuclear engineering program.

Served as a career U.S. Army officer with numerous operational assignments as an Infantry, Signal Corps, and Nuclear & Counterproliferation Officer.

**PROFESSIONAL
POSITIONS &
APPOINTMENTS
HELD
(CHRONOLOGICAL)**

Interim Executive Vice President Administration & Finance

Interim Chief Business Officer

Georgia Institute of Technology, 2022 – Present

Vice President and Deputy Chief Business Officer

Georgia Institute of Technology, 2021 – 2022

Adjunct Assistant Professor

George W. Woodruff School of Mechanical Engineering
Georgia Institute of Technology, 2021 – Present

Chief, Advanced Warfighting Technologies Division

Advanced Concepts Laboratory, Georgia Tech Research Institute
Georgia Institute of Technology, 2020 – 2021

Chief, Counterproliferation Technologies Program Office

Advanced Concepts Laboratory, Georgia Tech Research Institute
Georgia Institute of Technology, 2017 – 2020

Principal Research Engineer

Advanced Concepts Laboratory, Georgia Tech Research Institute
Georgia Institute of Technology, 2016 – 2021

Adjunct Principal Research Engineer

George W. Woodruff School of Mechanical Engineering
Georgia Institute of Technology, 2017 – 2021

Visiting Assistant Professor

George W. Woodruff School of Mechanical Engineering
Georgia Institute of Technology, 2015 – 2016

Vice President, Strategic Development

Hopewell Designs Inc., 2015 – 2016

Program Manager – Special Mission Unit Program

Nuclear Technologies Department, Research & Development Directorate
Defense Threat Reduction Agency, 2014 – 2015

Director, Nuclear Science and Engineering Research Center

Defense Threat Reduction Agency, U.S. Military Academy, 2012 – 2013

Program Manager

Nuclear Technologies Department, Research & Development Directorate
Defense Threat Reduction Agency, 2009 – 2015

Assistant Professor

Department of Physics & Nuclear Engineering
U.S. Military Academy, 2009 – 2015

Research Scientist, Nuclear Science and Engineering Research Center

Defense Threat Reduction Agency
U.S. Military Academy, 2009 – 2012

Affiliate Scientist

Idaho National Laboratory, 2006 – 2009

Sam Nunn-MacArthur Security Fellow
Sam Nunn School of International Affairs
Georgia Institute of Technology, 2006 – 2007

Assistant Professor
Department of Physics, U.S. Military Academy, 2005 – 2006

Affiliate Scientist
Los Alamos National Laboratory, 2004 – 2006

Instructor
Department of Physics, U.S. Military Academy, 2003 – 2005

Commander, C Company, 122nd Signal Battalion
2nd Infantry Division, Republic of Korea, 2000 – 2001

Division Communications Plans Officer
Headquarters, 2nd Infantry Division, Republic of Korea, 2000

Executive Officer, B Company, 50th Signal Battalion (Airborne)
18th Airborne Corps, 1998 – 1999

Executive Officer, Headquarters & Headquarters Company
1st Battalion, 504th Parachute Infantry Regiment
82nd Airborne Division, 1997 – 1998

Mortar Platoon Leader
1st Battalion, 504th Parachute Infantry Regiment
82nd Airborne Division, 1996 – 1997

**SELECTED
HIGHLIGHTS OF
SPECIFIC
EXPERIENCE &
DUTIES**

**Interim Executive Vice President Administration & Finance
Interim Chief Business Officer**

Georgia Institute of Technology, 2022 – Present

- Serve in the 3rd ranking position in Georgia Tech's administrative leadership team behind the President and the Provost
- Provide direct coordination with the USG Chief Operating Officer, Chief Fiscal Officer and members of the USO staff
- Lead administrative functions of the Institute including human resources, finance, budget and planning, information technology, facilities and infrastructure, capital planning and real estate development, campus security and emergency response
- Directly responsible for the A&F division which consists of over 1,700 employees with an annual budget over \$160M
- Lead six direct report Vice Presidents and the Chief of Police
- Oversee a \$2.6B enterprise composed of nearly 22,000 employees, serving approximately 46,000 students
- Responsible for main residential campus (17M+ gross sq. ft of academic, research, athletic, and other facilities on 400 acres) in midtown Atlanta
- Provide business operations leadership and oversight to \$1.3B research enterprise and \$166M auxiliary services organization

- Responsible for finances and oversight of the \$105M Division I athletics program (within Atlantic Coast Conference, a Power 5 conference)
- Provide fiduciary responsibility and serve as treasurer on the board of directors of the Georgia Tech Athletic Association
- Provide business operations leadership and oversight of two international campuses in Europe (Metz, France) and Asia (Shenzen, China), and research centers in Singapore and Panama
- Provide business operations oversight of Savannah campus and 21 field research offices/centers located in 7 states and the District of Columbia.
- Serve on the Executive Committee of the Board of Trustees of the Georgia Tech Foundation
- Serve on the Board of Trustees of Georgia Tech Research Corporation and the Georgia Tech Applied Research Corporation
- Serve on the Board of Trustees of the Alexander Tharpe (AT) Fund
- Serve on the Board of Trustees of Georgia Applied Technology Ventures
- Serve on the Board of Trustees of Georgia Tech Global
- Summary of High-level Accomplishments (2022 – Present)
 - Responsible for the full transition (contracts, finances, coordination) and selection (served as advisor to the president) of the GT Athletic Director, Head Football Coach, and Men’s Basketball Coach
 - Responsible for launching GT Administrative Services Center
 - Serve as an executive sponsor on the development of Georgia Tech’s Quality Enhancement Plan (QEP) for SACSOC accreditation.
 - Serve as an executive leader responsible for the implementation of the Georgia Tech Strategic Plan
 - Co-lead, with the provost and chief of staff, GT’s highest priority initiatives – *Growth Management* and *Administrative Reform and Shared Responsibility*
 - Support the president in delivering Transforming Tomorrow: The Campaign for Georgia Tech, a \$2B+ campaign
 - Responsible for the strategy and execution of the Tech Square Phase 3 project (\$240M high-rise development leveraging state, philanthropic and Institute funds)
 - Responsible for the strategy and execution of Science Square (GT’s \$648M investment in life sciences utilizing land owned by GATV, and leveraging the private / capital markets)
 - Responsible for operationalizing a \$65M U.S. Economic Development Administration (EDA) grant and supporting development of the business model and the infrastructure strategy
 - Served as executive agent on GT’s new budget model
 - Led, executed, and unveiled the GT Veteran’s Walk of Honor
 - Launched the GT Veteran’s Flag Program (in collaboration with the Alumni Association and the Veterans Resource Center)

Adjunct Assistant Professor / Adjunct Principal Research Engineer

George W. Woodruff School of Mechanical Engineering

Georgia Institute of Technology, 2017 – Present

- Developed and currently teach NRE6505, Fundamentals of Nuclear Nonproliferation (new graduate course cross-listed in the Ivan Allen College of Liberal Arts as part of a joint Certificate program)

- Serve on graduate thesis committees (masters and Ph.D.)
- Advise multiple students
- Conduct research and publish papers
- Participate in school faculty activities
- Advise and mentor a full-time graduate (student-athlete) intern
- Serve on a Centers for Disease Control and Prevention (CDC) Emergency Response Task Force as a subject matter expert enhancing the CDC's technical ability to respond to public health emergencies

Vice President and Deputy Chief Business Officer

Georgia Institute of Technology, 2021 – 2022

- Served as chief advisor, counselor and second-in-command to the Executive Vice President for Administration & Finance and the A&F leadership team
- Responsible for coordination with the USG office
- Responsible for the operational coordination and execution of the business and strategic initiatives of the institution including implementing the Institute Strategic Plan
- Responsible for business operations to ensure operational excellence

Chief, Advanced Warfighting Technologies Division

Advanced Concepts Laboratory, Georgia Tech Research Institute
Georgia Institute of Technology, 2020 – 2021

Chief, Counterproliferation Technologies Program Office

Advanced Concepts Laboratory, Georgia Tech Research Institute
Georgia Institute of Technology, 2017 – 2020

Principal Research Engineer

Advanced Concepts Laboratory, Georgia Tech Research Institute
Georgia Institute of Technology, 2016 – 2021

- Served as principal investigator and lead faculty member for \$30M+ in research grants and contracts in four years (2016-2020)
- Established a counterproliferation technologies research program focused on enabling technologies for the counter weapons of mass destruction (CWMD) and counterproliferation technology areas
- Launched the Counterproliferation Technologies Program Office (CPTPO) in February 2017 focused on asymmetric threats including unmanned aircraft, improvised threats, applications of drone warfare and advanced warfighting concepts
- Launched the Advanced Warfighting Technologies Division (AWTD) in January 2020 to execute research in countering WMD, special operations enablers development and advanced ground maneuver warfare capabilities
- Established several new technical research areas within GTRI and formed trusted Sponsor relationships with several organizations who have not historically funded GTRI
- Established new contract vehicles and leveraged existing GTRI vehicles for these research and funding opportunities

- Established new laboratories to support the growing faculty team
- Co-led team which developed Covid-19 testing capabilities for the State of Georgia. Worked under the direction of Governor Kemp’s office in support of the Department of Public Health
- Led the establishment of the Georgia Tech CLIA laboratory including hiring the team, developing the process, the facility, the information systems, and the required governance and compliance
- Led the research team and served as the lead principal investigator on “GT Saliva Collection Kit for the SARS-CoV-2 Virus” an FDA Emergency Use Authorization approved Covid-19 test
- Notably led and established the Georgia Tech Covid-19 testing effort providing over 600,000 Covid-19 tests from August 2020-July 2022 for Georgia Tech and the 156th and 157th Georgia General Assembly, in collaboration with Northeast Georgia Health System (NGHS)
- Led the daily management and operations of a team composed of faculty and students with responsibilities including the management of individual project assignments, work schedules, timesheets, overhead funds, promotion, salary management, and associated activities

Vice President, Strategic Development

Hopewell Designs Inc., 2015 – 2016

- Served as the vice president of a small technology company
- Served as a member of the executive leadership team
- Served as a principal providing oversight for company business operations including profit & loss, budgeting, strategic accounting and business forecasting functions
- Led all sales, marketing, science & technology, and strategic development activities
- Led company strategic activities including all company strategic development, planning and execution including market analyses, marketing, sales, forecasts, and associated activities
- Developed, resourced, and implemented company strategic framework including the business development plan (scored 20% in out-year growth)
- Performed a comprehensive assessment of company facility and infrastructure needs considering an emerging product line and increased revenues from existing products; developed a full-scale, analytically based plan for integration into the company strategic plan
- Established and led an industrial research program and product line launch based on first principles physics and particle transport phenomenology aimed at developing a product line replacement for Cobalt-60 medical treatment applications

Program Manager – Special Mission Unit Program

Nuclear Technologies Department, Research & Development Directorate
Defense Threat Reduction Agency, 2014 – 2015

Program Manager

Nuclear Technologies Department, Research & Development Directorate
Defense Threat Reduction Agency, 2009 – 2015

- Trained as a DoD Program Manager (Defense Acquisition University)
- Served as a program manager and delivered rapid, high-risk/high-payoff capabilities for the special operations mission in the Global War on Terrorism
- Managed \$60M+ annual budget and 800+ contractors/military personnel
- Managed customer and performer relationships
- Managed high visibility budget actions, development of program status reports for DoD and Congressional leadership, and daily management of several coast-to-coast teams (totaling hundreds of personnel from major defense contractors, the Department of Energy national laboratories, the DoD laboratories and academia)
- Managed interagency partners (in the Department of Homeland Security (DHS), the Department of Energy and other U.S. Government partners)
- Served as program manager on over twenty-five DoD research & development programs and three industry research programs; consistently on budget, scope, and schedule
- Served as the Project/Program Manager on a \$60M+ effort consisting of a prime contractor, 5 sub-contractors and 5 supporting performers which exceeded all key performance objectives
- Conducted program oversight activities and coordinated policy issues with national legislators, staffers, and seniors; developed reporting and products including one-pagers, desktide briefings, decision support tools and full-scale policy scholarship
- Served as the Contracting Officer's Representative (COR) on 15 U.S. Government contracts; responsible for managing contract lifecycle from pre-award (i.e. Request for Proposal, Scope Development & Kickoff) through post-award (i.e. Quarterly Reviews, Cost/Schedule, Deliverables, Assessments & Contract Assessment) and all supporting processes
- Led the engineering design/integration effort for all sensor systems supporting the DoD Millstone Bauxite Experiment (overall budget under 30% in total spend and cumulative savings to the government of \$5M)
- Orchestrated program risk management strategy to ensure attainment of technical/program objectives and 40% downtime reduction meeting operational requirements
- Managed and executed a \$1.1M effort to generate a novel system Technical Data Package (TDP) and DoD Technical Manual (TM) within a 90-day contract period of performance with a Tier I defense contractor; TDP recognized as a superb product with real-time operational impact

Director, Nuclear Science and Engineering Research Center

Defense Threat Reduction Agency, U.S. Military Academy, 2012 – 2013

Research Scientist, Nuclear Science and Engineering Research Center

Defense Threat Reduction Agency

U.S. Military Academy, 2009 – 2012

- Led military, civilian and contractor personnel, a complex budget consisting of various appropriations categories and budget activities (DoD appropriations)

- Established and managed a secure computing facility, and a sensor development laboratory
- Executed a cost-effective program reorganization plan by refocusing the personnel skill mix for 3 separate contracts, developing a new training paradigm and decreasing travel requirements; overall program was recognized as a model effort
- Supervised the conversion and implementation of organizational legacy systems to SAP-compliant enterprise financial and procurement management systems including the Defense Agencies Initiative (DAI) and the General Fund Enterprise Business System (GFEBS)
- Identified cost-saving solutions by eliminating contractor overtime, a \$500k savings; within the same program leveraged Government resources for the cross-country movement of critical systems via alternative shipment methods which saved over \$1M
- Led a team in the development of a 10-year Science & Technology (S&T) Roadmap for DTRA's nuclear science and engineering research portfolio including basic levels of investment tied to technology readiness levels (TRL)/Congressional funding and quantified by annual technical milestones
- Supported and led several military officer, soldier, and civilian personnel development efforts for both the U.S. Military Academy and Headquarters, U.S. Army; supported officer development activities for foreign partners
- Led efforts to expand specialized military skill set development across the DoD Service Academies (U.S. Military Academy, U.S. Naval Academy, U.S. Air Force Academy) and the DoD Graduate Schools (Air Force Institute of Technology and the Naval Postgraduate School)
- Developed and implemented the Defense Threat Reduction Agency (DTRA) value proposition for developing the next generation of Combating Weapons of Mass Destruction officers for DoD; management oversight by DoD leadership and Business Executives for National Security (BENS), a DoD-affiliated advocacy group
- Coordinated the construction, integration, and implementation of a new, multi-purpose state-of-the-art research facility with a large general contractor and the U.S. Army Corps of Engineers (under Military Construction); facility included capabilities for multiple hazards (radiation, lasers, chemicals, and robotics)
- Served as the Chief Scientist for a multi-year international radiation detection capability limited technical assessment and interoperability demonstration sponsored by U.S. Pacific Command (in partnership with Naval Sea Systems Command, , the Singapore Ministry of Defense and the Singapore Navy; supervised over 30 US personnel and \$10M in experimental equipment deployed to SE Asia)
- Served as Test Director for a co-DTRA/Air Force Research Laboratory (AFRL) radar test campaign
- Served as a supporting advisor to the U.S. Naval Academy in its ABET (Accreditation Board for Engineering and Technology) accreditation process of its nuclear engineering program

Assistant Professor

Department of Physics & Nuclear Engineering
U.S. Military Academy, 2009 – 2015

- Taught & served as guest lecturer in multiple courses
- Advised multiple cadets and midshipmen
- Served on graduate thesis committees (masters and Ph.D.)
- Conducted research and published papers
- Participated in department faculty activities
- Served as the lead author for all radiological & nuclear content within the revision of DoD Joint Publication 3-40 *Combating Weapons of Mass Destruction*
- Provided direct support to the establishment of the U.S. Naval Academy (USNA) nuclear engineering program
- Delivered multiple lectures at the NATO Center of Excellence-Defense Against Terrorism in Ankara, Turkey
- Served as the lead author and editor for the U.S. Army Nuclear and Counterproliferation Officer Handbook (a U.S. Army publication)
- Established a nuclear weapons effects research program focused on operational modeling & simulation code improvements using benchmarks, integral benchmarks, and physics models

Affiliate Scientist

Idaho National Laboratory, 2006 – 2009

Sam Nunn-MacArthur Security Fellow

Sam Nunn School of International Affairs
Georgia Institute of Technology, 2006 – 2007

- Developed and led research efforts focused on the standoff detection of special nuclear material via active methodologies; upon end of government service, recognized by DoD leadership as the DoD subject matter expert
- Developed several techniques based on the active stimulation of highly enriched uranium and plutonium nuclei and the resulting measurement of characteristic signatures via novel sensors
- Led research on the development of integrated neutron detection systems, gamma-ray detection systems and supporting high-speed data acquisition systems
- Conducted fundamental research which informed the development of multiple field deployable, generator-powered particle accelerator sources based on legacy and novel accelerator technologies (klystrons, RF modulators and electron guns)
- Led research focused on beam profile development, steerable beam positioning and associated dose control
- Led research into the development of high-fidelity beam characteristic transport models, beam measurement techniques and novel sensor to characterize and correlate the charged particle source, the source beam, the radiation field, and the incident radiation dose

Assistant Professor

Department of Physics, U.S. Military Academy, 2005 – 2006

Instructor

Department of Physics, U.S. Military Academy, 2003 – 2005

- Taught multiple courses
- Served as course director for multiple courses and curriculum
- Conducted research and published papers
- Participated in department faculty activities
- Served as the Officer in Charge of Chi Alpha Ministries
- Served as an Assistant Officer in Charge of the Fellowship of Christian Athletes (FCA)
- Taught multiple leadership development classes to cadets
- Supported training of cadets for the Sandhurst Military Skills Competition
- Served as the assistant operations officer for Cadet Summer Training
- Directed and led several efforts for ABET (Accreditation Board for Engineering and Technology) accreditation of the U.S. Military Academy's Nuclear Engineering Program.
- Served as an Officer Representative (Academics & Character Development) for the Army Black Knights (West Point) Football Team supporting cadet student athlete academic development including NCAA compliance and governance
- Served as the Officer in Charge of Chi Alpha Ministries
- Served as an Assistant Officer in Charge of the Fellowship of Christian Athletes (FCA)
- Supported several efforts relative to the U.S. Military Academy's Honor Code system

Affiliate Scientist

Los Alamos National Laboratory, 2004 – 2006

- Developed an algorithm to model the particle-level behavior of low energy proton transport (derived from the Bethe Equation) for integration into one of LANL's nuclear weapons codes

US Army Infantry & Signal Corps Officer

Various Assignments, 1995-2003

- Served as a U.S. Army officer in the Infantry executing the mission to close with and destroy the enemy
- Served as a U.S. Army officer in the Signal Corps executing the mission to manage all aspects of communications / information systems support
- Led the training, leadership development, health, safety, morale, welfare, and mission execution of soldiers in units ranging from 5 to 175 soldiers
- Served as a leader of paratroopers with specific skills and competence in the execution of airborne operations

EDUCATION

Ph.D. Nuclear & Radiological Engineering | Minor in Physics, August 2009
Georgia Institute of Technology
Dissertation: The Dosimetry of a Highly-Collimated Bremsstrahlung Source in Air

M.S. Health Physics, August 2003
Georgia Institute of Technology
Thesis: An Illicit Nuclear Material Detection System Based on Photoneutron and Photofission Interactions

M.S. Aeronautical Science – DISTINCTION, December 1999
Embry-Riddle Aeronautical University
Thesis: Theoretical and Experimental Analysis of the Pressure Distribution on a 35-foot Personnel Parachute

B.S. Aerospace Engineering, May 1995
Embry-Riddle Aeronautical University

TEACHING [COURSES TAUGHT & CO-TAUGHT]

Georgia Institute of Technology

GT1000 First Year Seminar: Exploring Leadership
NRE4206 Radiation Physics Lab
NRE3316 Radiation Protection Engineering
NRE4801 Special Topics in Nuclear Engineering
NRE6505 Fundamentals of Nuclear Nonproliferation
NRE7000 Masters Thesis
NRE8801 Special Topics in Nuclear Engineering

United States Military Academy

MX400 Officership (& leadership course teaching within military program)
NE400 Nuclear Engineering Seminar
NE456 Nuclear Weapons and Weapon Effects
NE495 Advanced Nuclear Systems Design Project I
NE496 Advanced Nuclear Systems Design Project II
NE489 Advanced Individual Study in Nuclear Engineering
PH203 Physics I
PH204 Physics II

MEMBERSHIPS & SERVICE

Technical

American Nuclear Society (ANS)
American Physical Society (APS)
Health Physics Society (HPS)
ASTM International (ASTM)
International Radiation Physics Society (IRPS)
Society of Physics Students (SPS)

Military

Life Member, Military Officers Association of American (MOAA)

Life Member, 82d Airborne Division Association

Life Member, Association of the United States Army (AUSA)

American Nuclear Society

Member

2002 – Present

Voting Member

American Nuclear Society Public Policy Committee

2005 – 2008

Member

American Nuclear Society Special Committee on Nuclear Non-Proliferation

2006 – 2009

Member

American Nuclear Society, Book Publishing Committee

2005 – 2008

Member

American Nuclear Society, Radiation Protection & Shielding Division

2002 – Present

Health Physics Society

Member

2002 – Present

Chair, N43-7 Standards Working Group - Safe Design and Use of Self-Contained, Dry Storage Gamma Irradiators (Category I), 2016-2019

American Society for Engineering Education

Paper Reviewer, Physics & Engineering Physics Division, American Society for Engineering Education Annual Meeting, Salt Lake City, UT, June 2004

Session Moderator, Physics & Engineering Physics Division, American Society for Engineering Education Annual Meeting, Salt Lake City, UT, June 2004

Vice Chair, Nuclear & Radiological Engineering Division, American Society for Engineering Education, June 2004-June 2005

Selection Committee, Glenn Murphy Award, American Society for Engineering Education, March 2005

Technical Chair, Nuclear & Radiological Engineering Division, American Society for Engineering Education Annual Meeting, Portland, OR, June 2005

Paper Reviewer, Physics & Engineering Physics Division, American Society for Engineering Education Annual Meeting, Portland, OR, June 2005

Chair, Nuclear & Radiological Engineering Division, American Society for Engineering Education, June 2005-June 2006

ASTM International

Member, Committee E61, Radiation Processing, 2015-2018

**GRADUATE THESIS
COMMITTEES**

1. T. Young. "Documentation Techniques and the Significance of Bloodstain Pattern Evidence." Master of Forensic Sciences, National University, October 2001.
2. A. Eastburg. "Assessing the Dose After a Radiological Dispersal Device (RDD) Attack Using a Military Radiac Instrument." M.S. Nuclear & Radiological Engineering, Georgia Institute of Technology, May 2010.
3. P. Exline. "Characterization of Modified Neutron Fields with Americium-Beryllium and Californium-252 Sources," M.S. Nuclear & Radiological Engineering, Georgia Institute of Technology, May 2011.
4. A. Decker. "Verification and Validation of Monte Carlo n-Particle Code 6 (MCNP6) with Neutron Protection Factor Measurements of an Iron Box." M.S. Nuclear Engineering, Air Force Institute of Technology, March 2014.
5. T. Genda, "Optimization of Prompt Neutron Detector Placement for Standoff Photon Interrogation of Special Nuclear Materials." M.S. Nuclear Engineering, Air Force Institute of Technology, March 2014.
6. B. Bixler. "Feasibility of Creating a Neutron Detector Array for the Detection of Special Nuclear Materials." M.S. Nuclear & Radiological Engineering, Georgia Institute of Technology, May 2015.
7. P. Rose. "Imaging Of Special Nuclear Materials Using Monochromatic Gamma Rays from Low-Energy Nuclear Reactions." Ph.D. Nuclear & Radiological Engineering, Georgia Institute of Technology, January 2017.
8. E. Redd. "Sensitivity Analysis and Parameterization of Passively Measured Prompt-Diagnostic Signatures from a Nuclear Detonation and the Effects on Early-Time Attribution." Ph.D. Nuclear & Radiological Engineering, Georgia Institute of Technology, August 2017.
9. J. Inman. "An Improved Model of Nuclear Debris Analysis Systems in Atmospheric Collection Aircraft." Ph.D. Nuclear & Radiological Engineering, Georgia Institute of Technology, April 2021.

10. D. Sundberg. "Development and Evaluation of Post-nuclear Detonation Particle Source Terms for Implementation Within Next- Generation Health Effects Models." M.S. Nuclear & Radiological Engineering, Georgia Institute of Technology, April 2023.
11. S. Johnston. (Working)"Optimization of the Grid for Electric Vehicles." Ph.D. Mechanical Engineering, Georgia Institute of Technology, August 2023 (planned).

**UNDERGRADUATE
THESIS RESEARCH**

1. Co-Advisor, LT Julien Arnaud, St-Cyr (French Military Academy) "Detection of Landmines Using Compton Backscatter of Gamma Rays", Fall 2005.
2. Co-Advisor, B. Huff, "Running MCNPX Using Core Physics Lab Computers in Parallel", Spring 2005.
3. Co-Advisor, A. Gillick, "Detection of Landmines Using Compton Backscatter of Gamma Rays", Spring 2006.
4. Advisor, J. Herrera, D. Matoi, "Calculation of Radiation Protection Factors for Common Structures", Fall 2009/Spring 2010.
5. Advisor, C. Anderson, F. Fitzpatrick, S. Tennison, "Monte Carlo Validation of a CZT Detector for Maritime Boarded Search Operations", Fall 2009/Spring 2010.
6. Advisor, W. Myers, J. Pitonyak, M. Yarmie, "Intuitive Interface Design for the Neutron Straw Detector", Fall 2009/Spring 2010.
7. Advisor, J Bailey, "Feasibility Study of Deploying a Bistatic Detection Array on an Unmanned Surface Vehicle", Fall 2010/Spring 2011.
8. Advisor, N. Veltri, "Analyzing the Effects of a Nuclear Weapon at High Altitudes Using NORSE with Varying Blackbody Temperatures", Fall 2010/Spring 2011.
9. Advisor, C. Farmer, "Characterization of the Neutron Field of a Pyroelectric D-D Fusion Device", Fall 2010.
10. Advisor, T. Anderson, R. Edwards, "Design and Build a LiTaO₃ Pyroelectric Crystal Mount for Thermal Cycling Experiments", Fall 2010/Spring 2011.
11. Advisor, K. Forward, "Develop a Validation and Verification (V&V) Environment for Radiation Sensor Characterization", Fall 2011.
12. Advisor, C. Briseno, D. Junta, "UHPC in Dry Storage of Spent Nuclear Fuel", Spring 2012.

13. Advisor, P. Rachel, "Validate the E1 Component of the Electromagnetic Pulse for the HEMPTAPs Code", Fall 2012/Spring 2013.
14. Advisor, P. Kim, "Current State of Vehicle Radiation Protection Factor Modeling and Experimentation", Spring 2013.

**PUBLICATIONS &
CONFERENCE
PROCEEDINGS**

1. M. P. Shannon, "Experimental Analysis of the Pressure Distribution on a 35-Foot Personnel Parachute," American Institute of Aeronautics and Astronautics (AIAA) 16th Aerodynamic Decelerator Systems Seminar & Conference, Boston, MA, May 21-24, 2001.
2. M. P. Shannon, H. O. Wooten, R. D. Ice, and N. E. Hertel, "Analysis of High NORM Levels in a Reactor Decommissioning Project," Radiation Safety Conference and Exposition (47th Annual Meeting of the Health Physics Society), Tampa, FL, Works-IN-Progress Poster, June 16-20, 2002.
3. M. P. Shannon, "A Model for Estimating the Dose of an Electron-based Border Imaging System," National Institute of Standards and Technology (NIST) Council on Ionizing Radiation Measurements and Standards (CIRMS) Annual Meeting, Gaithersburg, MD, October 2002.
4. N. E. Hertel, M. P. Shannon, Z.-L. Wang, M. P. Valenzano, W. Mengesha, and R. J. Crowe, "Neutron Measurements in the Vicinity of a Self-Shielded PET Cyclotron," Radiation Protection Dosimetry, May 2004.
5. M. P. Shannon and N. E. Hertel, "Broadening the Knowledge Base of Nuclear Engineering Students: The Development of a Course in Radiation Sources and Applications," 2004 ASEE Annual Conference & Exposition in Salt Lake City, Utah, June 20-23, 2004.
6. M. P. Shannon and L. Calvert, "Physics for the Modern Warrior: Bringing Innovation to Physics Instruction at the United States Military Academy," 2004 ASEE Annual Conference & Exposition in Salt Lake City, Utah, June 20-23, 2004.
7. M. P. Shannon and N.E. Hertel, "Using the Photoneutron Interaction to Detect Special Nuclear Material." Proceedings of the 38th Mid-Year Topical Meeting of the Health Physics Society, New Orleans, LA, February 13-16, 2005.
8. M.P. Shannon, G. Sandquist, M. Hendricks and S. Fleming, "Correlation of US Nuclear Power Plant Sites and Adjacent Population Health Effects." Proceedings of the 13th International Conference on Nuclear Engineering (ICONE 13), Beijing, China, May 16-20, 2005.
9. M.P. Shannon, E. Naessens, B. Moretti, "Bringing Nuclear Engineering Research to West Point: The United States Military Academy Nuclear

Engineering Research Group (NERG).” United States Army NBC Report, Winter 2005.

10. B. Powell, B. Huff, R. Prins, K. Sturgess, B. Moretti, M.P. Shannon, M. Tobin, K. Fournier, K. Bradley, C. Debonnel, “Recent Progress In Improving Nuclear Fallout Hazard Assessment.” Proceedings of the 24th annual Hardened Electronics and Radiation Technology (HEART) Conference, Santa Clara, CA, March 7-10, 2006.
11. A. Gillick, B. Moretti, M. P. Shannon, “Determining the Presence of Landmines Using Photon Backscattering.” 2006 American Nuclear Society Student Conference, Rensselaer Polytechnic Institute, Troy, NY, 31 March – 1 April, 2006.
12. C. Phillips, B. Moretti, M. P. Shannon, “An Ethical Epidemic.” 2006 American Nuclear Society Student Conference, Rensselaer Polytechnic Institute, Troy, NY, 31 March - 1 April, 2006.
13. N. Hertel, K. Burns, E. Burgett, S. Dewji, C. Lobracco, M. Shannon, C. Harrison, “Testing in Support of Space Radiation Shielding Composed of Nanocomposites”, Fermi National Accelerator Laboratory (Fermilab) All Experimenters Meeting, December 18, 2006.
14. M. P. Shannon, “NASA Poster,” Poster Presentation for the 2007 Georgia Institute of Technology Graduate Student Research Symposium, March 2007.
15. M. P. Shannon, “Bremsstrahlung Radiation Monitoring and Dosimetry for High-Energy, Outdoor Inspection Operations, A Project Overview and Status Report,” Poster Presentation for the 2007 Georgia Institute of Technology Graduate Student Research Symposium, March 2007.
16. M. P. Shannon, J. Osburg, S. Balestrini, “The Nuclear Option for Long Term Energy Independence,” Poster Presentation for the 2007 Georgia Institute of Technology Graduate Student Research Symposium, March 2007.
17. M.P. Shannon, J. Osburg, S. Balestrini, “Toward Long-Term Energy Independence and a More Sustainable Environment: The Nuclear Option,” Poster Presentation for the 2007 Georgia Tech Institute for Sustainable Technology and Development (ISTD) Poster Session and Vice President Al Gore Lecture, April 18, 2007.
18. E. Burgett, M. P. Shannon, N. E. Hertel. R. Howell, “Preliminary Investigation - Bonner Sphere Extension (BSE) for High Energy Neutron Spectroscopy.” 2007 American Nuclear Society Annual Meeting, Boston, MA, June 24-28, 2007.
19. M. P. Shannon, E. Burgett, N. E. Hertel, K. Burns, D. Blaylock, C. Harrison, E. Grulke, “Evaluation of a Nanoparticle Material in Space

- Radiation Shielding.” 2007 American Nuclear Society Annual Meeting, Boston, MA, June 24-28, 2007.
20. M. P. Shannon, E. Burgett, N. Hertel, D. Blaylock, K. Burns, S. Dewji, C. Lobracco, R. Howell, C. Harrison, E. Grulke, “Testing of a Novel Shielding Material in High Energy Particle Beams.” 52nd Annual Meeting of the Health Physics Society, Portland, OR., July 8-12 2007.
 21. E. Burgett, M. P. Shannon, N. E. Hertel, R. Howell, “A Three Exposure, High Energy Neutron Spectrometer.” 52nd Annual Meeting of the Health Physics Society, Portland, OR., July 8-12 2007.
 22. H. Hubble, M. P. Shannon, N.E. Hertel, “Does Wearable Radiation Shielding Have to Break the Bank?.” 52nd Annual Meeting of the Health Physics Society, Portland, OR., July 8-12 2007.
 23. N. E. Hertel, M. P. Shannon, “Active Interrogation for Detecting Special Nuclear Material.” Meeting, Alabama Chapter of the Health Physics Society, February 2008.
 24. M. P. Shannon, N.E. Hertel, “Dosimetry Needs and Challenges for Active Interrogation Systems.” Combating WMD Journal, Issue 2, U.S. Army Nuclear and Combating Weapons of Mass Destruction Agency, Fort Belvoir, VA, Spring 2008.
 25. M. P. Shannon, S. Scarboro, N. E. Hertel. “The Application of Biokinetic Modeling in Assaying Internal Contamination” 2008 American Nuclear Society Student Conference, Texas A&M University, College Station, TX, April 2008.
 26. M. P. Shannon, N. E. Hertel, D. Norman, W. Yoon, B. Bennett, W. Jones, J. Jones, “Dose Control in an Active Interrogation System.” 2008 American Nuclear Society Annual Meeting, Anaheim, CA, June 8-12, 2008.
 27. S. Scarboro, N. E. Hertel, R. Manger, C. LoBracco, S. Dewji, E. Burgett, M. Bellamy, M.P. Shannon, “Assaying Internal Contamination due to Inhalation Using Various Handheld Detectors—An Overview” 2008 American Nuclear Society Annual Meeting, Anaheim, CA, June 8-12, 2008.
 28. M. P. Shannon, N. E. Hertel, D. Norman, J. Jones, “An Approach to Dosimetry for High-Energy Bremsstrahlung Systems Operating in Outdoor Environments.” 41st Midyear Topical Meeting of the Health Physics Society, Oakland, CA., January 27-30, 2008.
 29. M. P. Shannon, N. E. Hertel, D. Norman, J. Jones, “Calculation of Build-up for a 20MeV Collimated Bremsstrahlung Beam.” 53rd Annual Meeting of the Health Physics Society, Pittsburgh, PA., July 13-17, 2008.

30. M.P. Shannon, N. E. Hertel, D.R. Norman, J. Jones, "Assessment of Regulatory Requirements for Operating Active Interrogation Systems in Support of National Security Applications." 53rd Annual Meeting of the Health Physics Society, Pittsburgh, PA., July 13-17, 2008.
31. M.P. Shannon, N. E. Hertel, "Measurements of High Energy Photon Dose from an Outdoor Accelerator-Based Source." 54th Annual Meeting of the Health Physics Society, Minneapolis, MN, July 12-16, 2009.
32. M.P. Shannon, N.E. Hertel, "Look Forward at the Research Needs for Active Interrogation Radiation Safety." 21st International Conference on the Application of Accelerators in Research and Industry (CAARI 2010), Fort Worth, TX, August 8-13, 2010.
33. M.P. Shannon, D. Gillich, A. Kovanen, T. Anderson, K. Bright, R. Edwards, Y. Danon, B. Moretti, J. Musk. "Pyroelectric Crystal Accelerator in the Department of Physics and Nuclear Engineering at West Point." 21st International Conference on the Application of Accelerators in Research and Industry (CAARI 2010), Fort Worth, TX, August 8-13, 2010.
34. T. Anderson, R. Edwards, K. Bright, A. Kovanen, Y. Danon, B. Moretti, J. Musk, M. Shannon, D. Gillich. "Preliminary Results Using the Pyroelectric Crystal Accelerator at West Point." 21st International Conference on the Application of Accelerators in Research and Industry (CAARI 2010), Fort Worth, TX, August 8-13, 2010.
35. N. Veltri, M. P. Shannon, W. Czajkowski, R. Jones, "Analyzing the Effects of a Nuclear Weapon at High Altitudes Using NORSE with Varying Blackbody Temperatures," 29th Annual Hardened Electronics and Radiation Technology (HEART) Conference, Orlando, FL, March 28 – April 2, 2011.
36. M. Shattan, M. P. Shannon, R. Jones, "Quantifying the Accuracy of Blackbody Approximations for NORSE Calculations," 29th Annual Hardened Electronics and Radiation Technology (HEART) Conference, Orlando, FL, March 28 – April 2, 2011.
37. M. P. Shannon, A. Wiedlea, D. Basiaga, "Using Constructive Simulation to Study Radiation Detection." 29th Annual Hardened Electronics and Radiation Technology (HEART) Conference, Orlando, FL, March 28 – April 2, 2011.
38. M.P. Shannon, P. Chapman, D. Wright, J. Gronberg. "ISIS Technology Development for Standoff Radiation Detection." 30th Annual Hardened Electronics and Radiation Technology (HEART) Conference, Monterrey, CA, March 2012.
39. M. P. Shannon, P. Chapman, C. Vergien, "Development of a Framework for the Quantitative Assessment of the Military Utility of Standoff Radiation Detection Technologies." 30th Annual Hardened Electronics and

Radiation Technology (HEART) Conference, Monterrey, CA, March 2012.

40. C. McCawley, A. Stout, M. P. Shannon, S. Barbaras, M. Jackson, "Design of a Methodology To Calculate Radiation Protection Factors For Army Equipment Using MCNP." 30th Annual Hardened Electronics and Radiation Technology (HEART) Conference, Monterrey, CA, March 2012.
41. A. Decker, M. P. Shannon, J. Clinton, J. McClory, S. McHale. "Verification and Validation of Monte Carlo N-Particle Code 6 (MCNP6) with Neutron Protection Factor Measurements of an Iron Box." *Journal of Radiation Effects Research and Engineering*, Vol. 33, No. 1-E, May 2015.
42. A. Decker, S. McHale, M. P. Shannon, J. Clinton, J. McClory, "Novel Bonner Sphere Spectrometer Response Functions Using MCNP6." *Nuclear Science, IEEE Transactions on*, vol.62, no.4, pp.1689-1694, Aug. 2015.
43. A. Decker, M. P. Shannon, J. Clinton, J. McClory, S. McHale. "Verification and Validation of Monte Carlo N-Particle Code 6 (MCNP6) with Neutron Protection Factor Measurements of an Iron Box." *Journal of Radiation Effects Research and Engineering*, Vol. 33, No. 1-E, May 2015.
44. M.P. Shannon, S. Mickum, Z. Hope. "Optimization of Shielding Parameters for a High Dose Rate Research Irradiator Design Baseline." 49th Mid-Year Meeting of the Health Physics Society, Austin, TX, February 1-3, 2016.
45. M.P. Shannon, S. Mickum. "A New High Dose Rate Research Irradiator." Council on Ionizing Radiation Measurements and Standards (CIRMS) of the National Institute of Standards & Technology (NIST), April 18-20, 2016.
46. M.P. Shannon, S. Mickum. "A Review of Gamma Cell 220 Research Irradiator External Dose Rates." 14th International Congress of the International Radiation Protection Association, Cape Town, South Africa, May 9-13, 2016.
47. M.P. Shannon, S. Mickum, Z. Hope. "Development of a High Dose Rate Research Irradiator Design." 61st Annual Meeting of the Health Physics Society, Spokane, WA, July 17-21, 2016.
48. M.P. Shannon, S. Mickum, Z. Hope. "Development of a High Dose Rate Research Irradiator Design for a New Host of Applications." *IEEE Nuclear and Space Radiation Effects Conference*, Portland, OR, July 11-15, 2016.
49. N. Sahajpal, A. Mondal, S. Ananth, A. Njau, P. Ahluwalia, V. Kota, K. Caspary, T. Ross, M. Farrell M. Shannon, S. Fulzele, A. Chaubey, M. Hegde, A. Rojiani, R. Kolhe. "Clinical Validation of a Sensitive Test for

Saliva Collected in Healthcare and Community Settings with Pooling Utility for Severe Acute Respiratory Syndrome Coronavirus 2 Mass Surveillance.” *The Journal of Molecular Diagnostics*, Volume 23, Issue 7, Pages 788-795, 2021.

50. G. Gibson, J. Weitz, M. Shannon, B. Holton, A. Bryksin, B. Liu, M. Sieglinger, A. Coenen, C. Zhao, S. Beckett, S. Bramblett, J. Williamson, M. Farrell, A. Ortiz, C. Abdallah, A. García. “Surveillance-to-Diagnostic Testing Program for Asymptomatic SARS-CoV-2 Infections on a Large, Urban Campus in Fall 2020.” *Epidemiology* Volume 33, Issue 2, Pages 209-216, 2022. | DOI: 10.1097/EDE.0000000000001448.
51. S. Abraham, C. Fuentes-Hernandez, S. Mukhopadhyay, K. Singh, H. Nun Kim, O. Moreno, C. Tran, D. Raj Kumar, J. Stooksbury, S. Kalidindi, N. Hertel, M. Shannon and B. Kippelen. “An Approach Towards Plastic Scintillators from Thermally Activated Delayed Fluorescent Dyes and Cross-linkable Bismuth Compounds.” *Journal of Materials Chemistry C*, Issue 46, Pages 17481-17488, 2022.

**REPORTS &
OTHER
PUBLICATIONS**

1. N. E. Hertel, et al. “Activation and Dose Rate Study of Components of the Omega West Reactor in Support of Its Decommissioning,” January 2003, Report to the Washington Group International, Inc., 204 pages.
2. N. E. Hertel, et al. “Activation Study of Components of the Cornell Research Reactor in Support of Its Characterization,” March 2003, Report to Duratek, Inc., 64 pages.
3. M.P. Shannon, N. E. Hertel, “Dose Distribution of a Proton Beam in a Water Phantom,” Quality Assurance of Computational Tools for Dosimetry (QUADOS), Intercomparison on the Usage of Computational Codes in Radiation Dosimetry (Concerted Action funded by the European Commission), Bologna, Italy, July 14-16, 2003.
4. M.P. Shannon, et al., “An Analysis of Improved Explosive Device (IED) Employment,” USMA IED Team Final Report, United States Military Academy, 8 November 2004.
5. J. Arnaud, B. Moretti, M.P. Shannon, “Detection of Landmines: Gamma Ray Backscatter Applications,” United States Military Academy/Saint-Cyr Internal Report, 10 December 2005.
6. N. E. Hertel, “Dose Scoping Calculation in Support of the ALL SECURE Testing Facility,” February 2007, Report to ScanTech Sciences Inc. (assisted in the writing of this report).
7. E. Grulke, Final Report. “Synthesis and Analysis of Nanoparticle Composites for Radiation Shielding: NASA # NNM04AA60G,” NASA Project under NRA-03-OBPR-07, March 2007, Report to the National Aeronautics and Space Administration, (assisted in the research presented in this report).

**TECHNICAL &
POLICY
PRESENTATIONS**

8. D. Norman, J. Jones, K. Haskell, J. Sterbentz, W. Yoon, J Johnson, S. Watson, M. P. Shannon, B. Bennett, W. Jones, J. Zabriskie, M. Kinlaw, D. Gerts, A. Hunt, K. Folkman, C. O'Neil, "PITAS Generation III System Design Report: The Developmental Prototype." INL/EXT--08-13798, Idaho National Laboratory, Idaho Falls, ID, January 1, 2008.
1. J. Powell, P. Farell, M. Shannon, G. Merkel, A. Grum, "Generation of Power & Fuel for On-Site Critical Operations at Military Bases." Presentation to the Defense Science Board, Washington, D.C., November 30, 2006.
2. M. P. Shannon, J. King, L. Drauker, E. Hill, "A Policy Strategy for the US-DPRK Situation: From Nuclear Standoff to True Stability." Presentation to Minister Kim Myong Gil, Democratic Peoples Republic of Korea (North Korea) Deputy Permanent Representative to the United Nations, Sam Nunn Security Program, Center for International Strategy, Technology and Policy, Georgia Institute of Technology, December 5, 2006.
3. M. P. Shannon, "Active Interrogation for Detecting Special Nuclear Material." Invited Presentation to the New York State American Physical Society/American Association of Physics Teachers Meeting, West Point, NY, April 13, 2007.
4. M.P. Shannon, "Overview of the PITAS & Related Dosimetry Research Activities." National Council on Radiation Protection (NCRP) SC 1-18/SC1-19 Committee Meeting, National Council on Radiation Protection, Bethesda, MD, November 9, 2009.
5. M. P. Shannon, "A Look at WMD Proliferation in Asia: Focusing on China & North Korea." (Invited Lecture), COE-DAT 10, Weapons of Mass Destruction Terrorism Course, NATO Center of Excellence – Defense Against Terrorism, Ankara, Turkey, November 11-13, 2009.
6. M. P. Shannon, "A New Paradigm in WMD Nonproliferation Initiatives: UNSCR 1540 & PSI." (Invited Lecture), COE-DAT 10, Weapons of Mass Destruction Terrorism Course, NATO Center of Excellence – Defense Against Terrorism, Ankara, Turkey, November 11-13, 2009.
7. M.P. Shannon, "Combating WMD Education at the U.S. Military Academy – A Partnership Between USMA, DTRA and NDU." National Defense University Center for the Study of Weapons of Mass Destruction Combating WMD Education Workshop, July 21, 2010.
8. C. Vergien, M. P. Shannon, "Integrated Standoff Inspection System (ISIS) Overview." US Strategic Command (USSSTRATCOM) Global Synchronization Conference, Chantilly, VA, February 2011.

9. M. P. Shannon, “Integrated Standoff Inspection System (ISIS) Project Update.” US Strategic Command (USSSTRATCOM) Global Synchronization Conference, Chantilly, VA, July 20, 2011.

**PUBLISHED BOOKS
OR PARTS OF BOOKS**

1. Editor, “United States Army Nuclear and Combating Weapons of Mass Destruction Functional Area (FA) 52 Handbook.” U.S. Army Nuclear and Combating Weapons of Mass Destruction Agency, Fort Belvoir, VA, July 2012.
2. Author, Chapter 4: Army Combating Weapons of Mass Destruction Doctrine. “United States Army Nuclear and Combating Weapons of Mass Destruction Functional Area (FA) 52 Handbook.” U.S. Army Nuclear and Combating Weapons of Mass Destruction Agency, Fort Belvoir, VA, July 2012.
3. Author, Chapter 8: Radiological. “United States Army Nuclear and Combating Weapons of Mass Destruction Functional Area (FA) 52 Handbook.” U.S. Army Nuclear and Combating Weapons of Mass Destruction Agency, Fort Belvoir, VA, July 2012.
4. Author, Chapter 9: Nuclear. “United States Army Nuclear and Combating Weapons of Mass Destruction Functional Area (FA) 52 Handbook.” U.S. Army Nuclear and Combating Weapons of Mass Destruction Agency, Fort Belvoir, VA, July 2012.
5. Contributing Author, “Joint Publication 3-40, Countering Weapons of Mass Destruction.” Chairman of the Joint Chiefs of Staff (CJCS), Washington, DC, October 31, 2014.

Due to U.S. Government restrictions on (1) contract deliverables [and dissemination of information], and (2) classified information [including national security information (NSI), Critical Nuclear Weapons Design Information (CNWDI), Restricted Data (RD) and Formerly Restricted Data (FRD)], citations of other authored reports and papers from 2003-2021 are omitted.

**COMMUNITY
SERVICE**

Youth Sports Coaching

Outdoor Soccer Head Coach, Kennesaw, GA, 2021 – Present
Flag Football Head Coach, Kennesaw, GA, 2016 – Present
Indoor Soccer Head Coach, Kennesaw, GA, 2021 – 2022
Basketball Head Coach, Acworth, GA, 2019 – 2020
Flag Football Assistant Coach, Kennesaw, GA, 2015 – 2016

Veterans Programs

Supporter, Valor Service Dogs, 2022 – Present
Supporter, Disabled American Veterans, 2003 – Present

Supporter, Tunnel to Towers, 2020 – Present
Supporter, Wounded Warrior Project, 2011 – Present

Northstar Church, 2015 – Present
Lighthouse Christian Assembly, Board Member, 2003 – 2006
Lighthouse Christian Assembly, Treasurer, 2003 – 2006

HONORS & AWARDS

Multiple U.S. Army and Joint Staff Awards, 1995 – 2015

Graduate with DISTINCTION, Embry-Riddle Aeronautical University, 1999

Honor Graduate, Signal Corps Captains Career Course, 2000

Council on Ionizing Radiation Measurements and Standards (CIRMS) of the National Institute of Standards & Technology (NIST), 2002 Graduate Student Best Paper Award, April 2002

Graduate, Master Teacher Program, United States Military Academy, West Point, NY, December 2003

2007 Graduate Student Research Symposium, Runner-up for College of Engineering Category and First Place for Ivan Allen College Category, Georgia Institute of Technology, April 2007

2007 Institute for Sustainable Technology and Development Sustainability Poster Session and Vice President Al Gore Lecture, Third Place, Georgia Institute of Technology, April 2007

2007-2008 Graduate Fellowship in Health Physics, Health Physics Society

2006-2007 Research Fellow, Sam Nunn Security Program (funded by the MacArthur Foundation), Center for International Strategy, Technology and Policy, Sam Nunn School of International Affairs, Georgia Institute of Technology

2008 American Nuclear Society Best Paper Award. “The Application of Biokinetic Modeling in Assaying Internal Contamination” 2008 American Nuclear Society Student Conference, Texas A&M University, College Station, TX, April 2008

2018 One GTRI Team Award, April 2018

2021 Georgia Tech Outstanding Achievement in Research Program Development Award, April 2021

2021 Georgia Tech One Giant Leap Award, April 2021

Elected member of Alpha Nu Sigma (Nuclear Engineering Honor Society)

Elected member of Sigma Pi Sigma (Physics Honor Society)

Elected member of the Order of the Engineer

**PROFESSIONAL
DEVELOPMENT
& CERTIFICATES**

EAB Future Presidents Intensive
EAB, February – March 2023

Design Thinking—A Toolkit for Breakthrough Innovation Certificate
Kellogg School of Management – Executive Education Program
Northwestern University, May – August 2022

Executive Leadership Institute (ELI)
University System of Georgia, October 2021 – May 2022