

Joshua M. Keena, PhD, PE

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Creative, dynamic, and inspiring scientist-engineer, team builder, and combat tested professional. Experience conducting and leading military research at the basic, applied, and developmental levels. Passionate about project leadership, product design, and the nexus of survivability, lethality, and mobility. PhD from the University of Texas and a West Point graduate. Service-driven leader inspired to delight clients by conquering challenges and rapidly delivering solutions to complex problems. Award winning engineer humbly recognized for distinguished service across a broad spectrum of dynamic and diverse assignments. Motivated for action-oriented design that can enhance capabilities, save lives, and galvanize team members.

July 2019 – present: Program Management Deputy Division Chief for Science and Technology within the Plans, Programs, and Experimentation Directorate (G-3/5/7) at Army Futures Command (AFC) in Austin, TX. Develop and manage an integrated Research, Development, Test & Evaluation (RDTE) program portfolio to ensure effective balance and responsive prioritization between discovery investments and delivery resources totaling over \$15B annually. Design and refine workflow processes to support the mission, vision and goals of the AFC S&T Division, with emphasis on improving efficiency and quality of the S&T planning and programming process. Use a mastery of programs and projects to serve as a technical acquisition advisor.

- Led a Root Cause Analysis (RCA) Team at a critical juncture during the launch of a new software tool. Rapidly converged on a Plan of Action which rectified issues affecting over 70% of users.
- Developed and coordinated a hiring action program to bring a vital AFC division to full staffing. Worked through traditionally underutilized platforms to improve the staffing posture over 20%.
- Initiated a governance structure for the Army Future Force Integrated Resource Management (AFFIRM) software tool with an agile backbone supported by a Change Control Board (CCB), Steering Committee (SC), and Board of Directors (BoD). Enhanced functions and improved accuracy for hundreds of users.

July 2014 – June 2019: Assistant Professor, West Point Assistant Professor in Mechanical Engineering and Associate Director for Armaments at the Center for Innovation and Engineering (CIE) at the United States Military Academy, a world-class institution for leadership development and engineering education. Responsible for educating, training, and inspiring cadets so they can become commissioned leaders of character. Course Director and Instructor for mechanical engineering courses including Weapons Engineering, Automotive Engineering, Thermal-Fluid Systems, Heat Transfer, and Mechanical Engineering Design. Serve as Capstone Project and Independent Study Advisor for armament and vehicle design and analysis efforts. Manage armament portfolio as liaison to Picatinny Arsenal. Winner of the West Point Peter S. Michie Award for outstanding teaching and curriculum development, and the Claudius Crozet Award for exemplary project advising, rapid problem solving, and research collaboration.

- Advised 7-month project that won the Soldier Design Competition (SDC) Director's Award, in addition to selection for patent pursuits and delivery overseas for a Limited User Test (LUT).
- Developed a Weapons Engineering course in only 3-months with topics on Terminal, Exterior, and Interior Ballistics as well as three laboratory events using instrumentation technologies and advanced sensors.
- Revitalized the automotive engineering curriculum by incorporating a modern mobility platform, the Polaris M-RZR, as well as data acquisition into lab exercises on acceleration, braking, steering, and terramechanics.
- Served as Officer Representative (OR) for Cross Country and Track and Field Program, and as Officer In Charge (OIC) of Army West Point Marathon Team.
- Operated on the Defense Advance Research Project Agency (DARPA) Source Selection Boards (SSB) for the Ground Experimental Vehicle Technology (GXV-T) and Massive Overmatch Assault Round (MOAR).
- Selected as a DARPA Contract Officer Representative (COR) for GXV-T and the Fuel Efficient, Light Weight, Heavy-Fueled Rotary Combustion Engine Programs, responsibly disbursing over \$2M annually.

August 2013–June 2014: Assistant Product Manager, Excalibur Served the Product Manager for Excalibur, a \$1.6B Acquisition Category (ACAT) 1C Cooperative Development and Production program with the Kingdom of Sweden. Lead 12 person team responsible for cost, performance, and schedule of the Excalibur 155 mm guided projectile Test and Evaluation (T&E) program with an annual budget of \$10.5M. Coordinated Foreign Compatibility Testing (FCT) and Foreign Military Sales (FMS) with US Embassies, Offices for Defense Cooperation, and senior corporate executives.

- Conducted successful First Article Test (FAT) and Initial Operational Test and Evaluation (IOTE), gates supporting Full Rate Production (FRP) and Full Material Release (FMR) for the Excalibur Ib projectile.
- Supervised 8 successful Lot Acceptance Test (LAT) events of Excalibur Ia-2 and Ib projectiles, reduced test costs 12% enabling government acceptance and delivery of over 2000 rounds to the US inventory.
- Oversaw initial firing of the FCT for Excalibur and the German Panzerhaubitze (PzH-2000), self-propelled howitzer as part of Foreign Government Sales (FGS) space development.
- Supported test concept and practical demonstration for first-ever firing of a semi-active laser (SAL) Excalibur variant for GPS-denied environment conditions.

August 2011–July 2013: Chief of Special Programs Managed a technologically diverse portfolio of Advanced Technology Development (ATD) pursuits for Special Operations Command (SOCOM) at the Armament Research Development and Engineering Center (ARDEC), Research Development and Engineering Command (RDECOM), Picatinny Arsenal, NJ. Responsible for the performance, schedule, and cost of emerging military technologies including advanced energetics, novel tactical weapons, enhanced projectile and warhead designs, and directed energy technologies. Served as Contracting Officer Representative (COR) and Contract Monitor (CM) for a \$7M annual SOCOM engineering contract. Fostered relationship between user community and materiel developers through effective networking.

- Ranked best Major at RDECOM by the Deputy Commanding General for accomplishments while deployed to Operation Enduring Freedom (OEF), Afghanistan in support of SOCOM engineering development.
- Deployed to Afghanistan and successfully led a Science and Technology Assistance Team (STAT). Supported units with rapid prototype development, commercial items procurement, and technical support.
- Designed and managed a retrograde and redeployment database (AARRD-VK) that provided leaders with a virtual dashboard of critical information for thousands of personnel and pieces of equipment.
- Introduced an electromagnetic velocimeter to precision marksman, a revolutionary weapon instrumentation technology that was later transitioned into the Sniper Accessory Kit (SAK) product portfolio.
- Assisted in the development and demonstration of 17 ARDEC projects at Tactical Network Testbed (TNT) events in support of SOCOM capabilities enhancement pursuits.
- Article reviewer for Institute of Electrical and Electronics Engineers (IEEE) Transactions on Plasma Science as related to Electromagnetic Launch, and served as STEM Mentor for high school robotics team.

November 2005–July 2011: Uniformed Army Scientist and Engineer Conducted basic and applied research on advanced weapon concepts as a Research Fellow at the Institute for Advanced Technology in Austin, TX. Work included detailed theoretical, computational, and experimental studies of electromagnetic launch and hypervelocity impact physics as related to a doctoral degree in mechanical engineering at the University of Texas at Austin, a Tier I University.

- Served in OEF, Afghanistan as a rapid fielding product manager for the Joint Improvised Explosive Device Defeat Organization (JIJEDDO). Expeditiously fielded over 1,000 IED detection systems ahead of schedule and under budget across Regional Command East (RC-E).
- Designed a suite of decision support tools for evaluating the relative effects and mathematical interactions of simulated ground combat vehicle performance as a function of platform survivability, lethality, and mobility (PhD dissertation).
- Developed novel instrumentation techniques and completed a comprehensive study on transient thermal loading of electromagnetic launcher conducting rails, to include modeling and simulation of thermal recovery (MSE thesis).

Certifications, Service, and Outreach

- Member of the Army Acquisition Corps (AAC)
- Qualified Level III in Program Management (PM)
- Qualified Level III in Science and Technology Management (STM)
- Licensed Professional Engineer (PE) in Mechanical Engineering
- Top Secret (TS) Security Clearance
- Master Teacher Program (MTP) Graduate
- Volunteer Firefighter, Highland Falls Fire Department
- Interior Firefighting Operations (IFO) Certification Course, Top Rung Award Winner
- Officer Representative (OR) for Army West Point Track and Field Program
- Coach for Army West Point Marathon Team
- Officer in Charge (OIC) for Army West Point Tank Crew
- Volunteer Coach for youth sports