SEAN STAPF

ASSOCIATE, DAYTON AEROSPACE, INC.

PROFILE

Highly accomplished mechanical/aerospace engineer with over 30 years of experience across the US Navy (USN), US Air Force, (USAF) and the Federal Aviation Administration (FAA). US Patent holder with specialized expertise in analysis of rocket and aircraft dynamics, trajectory, structures, thermal transfer and fluid dynamics.

PRINCIPAL AREAS OF EXPERTISE

Aviation & Weapon Safety

Recognized dynamics and trajectory expert. Created trajectory and dynamics models for the Department of Defense (DoD), NASA, and commercial space devices. Supported systems/events include the Space Shuttle, Mars Science Lander, SpaceX Falcon-9, aircraft ejection seats and canopy jettisons, F-18 LAU-7 Sidewinder missile launcher, Apache 2.75-inch and F-15 ZUNI rocket launches, standard missile ship launches, Extended Range Guided Munitions (ERGM), JATO-launched C-130 aircraft and unmanned aerial vehicles (UAVs), hypersonic sled track tests, aircraft flare-decoys, explosive ordnance disposal (EOD) anti-terrorism cannons, theater ballistic missile defense (TBMD) rockets, and Cobra fire-control algorithms. Performed numerous structural analyses, including creation of finite element models and hand-calculations for rocket cases, bulkheads, nozzles, bolts, launch rails, fins, warhead couplings, internal colliding components and aircraft struts.

Manufacturing

Directed production of $3M annually in ejection seat rocket systems and procured and inspected $1M/year in ejection seat rocket hardware. Achieved better than 2.5% acceptable quality limit (AQL) performance quality on ejection systems for which a failure results in fatality of aircrew and accomplished “just in time” delivery of ejection rocket catapults for which a delay causes grounding of US and ally military aircraft. Coordinated resources for assembly, testing, and international shipment of explosive product; facilitated product testing and investigation using high-speed photography, computerized transducers, x-ray, and electron microscopy; and identified over $200K in annual savings from production improvements in process and tooling.

DAYTON AEROSPACE
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EDUCATION

BS, Mechanical Engineering
North Carolina State University

KEY POSITIONS

Aerospace Engineer
Commercial Space Transportation, Office of the Chief Engineer, FAA

Aerospace Engineer
45th Space Wing, USAF

Mechanical Engineer
Naval Surface Warfare Center, USN

CERTIFICATIONS

Engineer in Training (EIT)

Air Force System Safety Management

NASA Introduction to Mishap Investigation

WORK HISTORY

Associate | Dayton Aerospace, Inc.
2021-present, *Dayton, Ohio*

Provide clients a wide range of support in system safety, manufacturing, and project engineering to include performing physics analysis (trajectory, dynamics, mechanics, structures, thermal and fluid analysis) on rockets, ejection seats, weapons, aircraft, EOD equipment and various other energetic devices.

Aerospace Engineer | Commercial Space Transportation, Office of the Chief Engineer, Federal Aviation Administration (FAA)
2016-2019, *Washington, DC*

Responsible for calculations of trajectory, structural, thermal, and fluid dynamics for safety assessments of rockets, aircraft, debris, buildings, and exposed personnel. Conducted and coordinated physics modeling and training with the USAF in support of Space Launch Vehicles while on assignment to the FAA field office at the 45th Space Wing, Patrick Air Force Base (AFB), Florida.

Aerospace Engineer | 45th Space Wing
2005-2016, *Patrick AFB, FL*

As a launch safety engineer, calculated rocket malfunction-turns, explosions, and debris trajectory for protection of the public against errant Kennedy Space Center and Cape Canaveral Air Force Station (AFS) rocket launches—including the Atlas-V, Delta-II, Delta-IV, NASA Space Shuttle, and SpaceX Falcon-9. Authored and operated the USAF's current ejection seat trajectory simulator (the "ADAMS Ejection Model") since 2000, calculating ejection trajectories for mishap investigations of numerous military aircraft.

Mechanical Engineer | Naval Surface Warfare Center, US Navy
1990-2005, *Indian Head, MD*

15 years of engineering experience in rocket and weapons design, manufacturing, safety, and quality.

COMPUTER LANGUAGES/SOFTWARE

- Solidworks (with Advanced Professional CFD and FEA packages)
- MSC Software (with ADAMS professional 6-DoF Mechanical Dynamics and PATRAN FEA with MARC, NASTRAN, DYTRAN, and ABAQUS solvers)
- Fortran
- Basic
- Numerous self-authored codes for physics analysis

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