
Fatigue & Damage Tolerance Engineer

13+ years' success leading engineering innovation in the aerospace industry

Dedicated and experienced engineering professional with extensive knowledge of engineering principles, theories, specifications, and standards, bringing leadership, drive and over 13 years of experience. Main focus on fatigue and damage tolerance, providing significant contribution to the FAA / EASA certification of new products as well as to improving retirement life of existing products, thus insuring customer cost reduction and increased satisfaction. Proven track record of finishing complex projects ahead of schedule. Substantial experience in analyzing problems and offering mechanical solutions to help alleviate them. Adept in overseeing the testing process of mechanical systems and components, and working with other professionals to ensure that projects are successfully completed. Expertise in company non-commercial software for fatigue life and crack growth threshold calculation, flight test database, prototype fatigue-tracked parts database.

Immigration status: US Green Card holder – Authorized to work for any employer.

Highlights of Expertise

- Fatigue Test Requirements & Loads
- Fatigue and Damage Tolerance Analyses
- FAA Rules and Regulations
- Aircraft Structure Designs
- Integrated Mechanical Systems
- Team Leadership & Development
- Project Management
- Cross-Team Collaboration

Career Experience

BELL HELICOPTER

Developing a new advanced aircraft, balancing performance with structural integrity needs

PRINCIPAL ENGINEER – Fatigue & Damage Tolerance (August 2019 to present) – Fort Worth, Texas

Support the design, development and certification of new advanced aircraft from a Fatigue standpoint.

LEONARDO HELICOPTERS (former AgustaWestland)

Used flight test data and material properties to set optimal fatigue test loads enhancing the retirement life of critical parts and reducing the need to replace parts.

SENIOR FATIGUE ENGINEER (December 2015 to July 2019) - Philadelphia, Pennsylvania

Analyze flight test data and conduct assessments to determine fatigue and damage tolerance test loads and requirements for the AW609 tilt-rotor project. Create, review, and validate fatigue test plans and reports. Produce aircraft usage spectrums in adherence with FAA part 25, 29, and TR certification tests. Perform fatigue substantiation on critical components to comply with FAA regulations.

- ◆ Developed and implemented the load-level survey test plan for certification.
- ◆ Supported flight test activities for helicopter icing spray system (HISS) certification campaign.

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- ◆ Supervised the start of full-scale fatigue tests conducted at landing gear supplier in Canada, also discovering errors in landing gear testing, whose correction prevented premature failure of the landing gear.
- ◆ Calculated optimal fatigue test loads using flight test data that led to enhancing the retirement life of aircraft critical components thus reducing the need to replace parts.
- ◆ Trained team members in telemetry monitoring of flight stresses and loads.

Performed fatigue analyses for certification on the AW609 tilt-rotor project and assessed the airworthiness for the AW609 prototypes.

FATIGUE ENGINEER (June 2012 to December 2015) - Arlington, Texas

Monitored static and fatigue flight loads in telemetry room during envelope expansion and structurally demanding flight tests, including aero-elastic stability and autorotation flight tests. Provided feedback to pilots and top-level managers to alleviate or eliminate technical issues and improve flight test productivity.

- ◆ Facilitated transfer of fatigue testing activities from Bell to AW and worked with Bell colleagues to ease the transition after the purchase of the AW609 project by AW.
- ◆ Was part of the team that achieved an original feat in aviation history by participating in demonstrating the capability of a tilt-rotor to perform auto rotations like helicopters.
- ◆ Accomplished changes to flight techniques that increased the duration of parts.

Executed fatigue analysis and life calculation on AW109, AW129, AW139, and AW101 helicopters and AW609 tilt-rotor aircraft and generated fatigue usage spectrums for AW109 and EH101 helicopter missions.

FATIGUE ANALYST (January 2007 to June 2012) – Milan area, Italy

Validated software developed in house for fatigue life and crack growth threshold calculations. Utilized material test data to generate fatigue and damage tolerance design data to use in design of new AW helicopter projects. Used finite element method (FEM) and boundary element (BEA) analysis results for fatigue calculations and determined retirement lives and inspection intervals. Completed fatigue test load determination and oversaw initial phase of fatigue tests. Prepared technical reports and documents to demonstrate compliance to certification authorities.

- ◆ Attained optimized loads and analyses for fatigue tests and enhanced the fatigue life of several AW109 components.
- ◆ Trained over 30 individuals throughout UK and Italy to use test laboratory database to store and access fatigue test data and specifications.

*Additional experience as a **Manufacturing Engineer** with Avio Aero.*

Education

Master of Science in Mechanical Engineering

Politecnico di Milano, Italy

Software

*J-Rain (Rain-Flow software) ~ Concept Analyst (Boundary Element Analysis software) ~ Symvionics IADS
ENOVIA ~ Pro Engineer ~ NASGRO ~ CAFTA ~ MS Office*