**Admir Makas**

**Mailing Address:**

4148 Reed Way Cell: 719-321-8269

Dayton, OH 45371 e-mail: [amakas84@gmail.com](mailto:amakas84@gmail.com)

**Summary CV**

I am currently a Ph.D. student at Wright State University focusing in Optimization. Before enrolling into the Ph.D. program, I was a design engineer working on developing next generation suspension systems for passenger vehicles from 12/12 – 06/15. Prior to this, I received a Master’s Degree from Arizona State University (ASU) in Mechanical Engineering. My research topic dealt with characterizing fatigue performance of an anisotropic aerospace grade aluminum alloy on a micro-structural scale using experimental and FEA techniques. Data was subsequently used for structural health monitoring of aerospace components. Throughout my graduate studies, I had the privilege of presenting my research in multiple conferences. Furthermore, the research conducted led to a journal publication. I additionally spent two years working in the aerospace industry before going to ASU. Below is a detailed summary of education and work background along with a list of technical skills acquired over time.

**Education**

M.S. in Mechanical Engineering – Arizona State University 08/09 - 07/11

**Master’s Thesis**: Effect of Rolling Induced Anisotropy on Fatigue Crack Initiation and Short Crack Propagation in Al 2024-T351

B.S. in Mechanical Engineering – University of Colorado 08/02 - 05/07

Minor in Aerospace Engineering – University of Colorado 08/02 - 05/07

**Received Outstanding Undergraduate of the Year Award**

**Work Experience**

**F-Tech R & D,** Troy, OH 12/12-06/15 **Design Engineer**

* Responsible for design of automotive frames from initial conception to production release.
* Product design incorporated extensive use of CAD software (UG NX, CATIA) along with Finite Element Analysis techniques for design validation.
* FEA validation included vibration analysis, static stress analysis (linear and non-linear), fatigue analysis, and stiffness/deflection analysis.
* Worked with test group during design validation process to trouble shoot and fix identified design issues via durability testing and stress characterization using strain gages.
* Developed and presented design status updates to customers and senior management.
* Develop assembly drawings using accepted G, D & T practices.

**Chrysler Group LLC**, Detroit, MI 07/11 - 05/12

**Engine Test Engineer (Contract Position)**

* Responsible for conducting testing on upcoming engine variants for passenger vehicles through the use of dynamometers.
* Scope of testing included engine and component durability testing along with the engine evaluation in varying operating conditions.
* Developed personal software tools using Excel/VBA and Matlab to expedite data processing.

**Arizona State University,** Tempe, AZ 01/10 - 06/11 **Graduate Research Assistant**

* Researched the effects of material anisotropy on fatigue and fracture properties of aerospace grade aluminum alloy used on F-16 fighter jet structural components.
* Used NASTRAN to perform linear and non-linear FEA stress of test samples and tooling to ensure proper part functionality and to evaluate the stress state of the experimental samples used for fatigue and fracture analysis.
* Used CAD software (UG NX) extensively for design and drafting of test samples and tooling necessary for the experimental phase.
* Developed unique test procedures for sample testing using uniaxial and biaxial tensile test machines.
* Made extensive use of EDS, EBSD and electron microscopy to characterize the mechanical and crystallographic properties of the alloy to aid in the understanding of material performance under complex states of stress.
* Other responsibilities included generating reports of current progress for fellow colleagues belonging to the same research group and presenting the experimental findings at various international conventions.

**Chromalloy Inc., Phoenix, AZ** 08/07 - 10/09 **Project Engineer**

* Part of a design group responsible for developing new static and rotating turbine engine components along with creating repairs for used turbine engine components.
* 3-D CAD software (UG NX) was widely used for design of new turbine components and part repair development.
* NASTRAN FEA software used to perform linear and non-linear stress analysis along with thermal and vibration analysis on static and rotating machinery. Simulation data was used to evaluate fatigue properties of subject components.
* Developed substantiation documents for new jet engine components and part repairs as required by FAA mandates.
* Develop component drawings for manufacturing purposes using accepted G, D & T practices.

**Technical Skills**

**Software:** Siemens NX, NX Nastran, ABAQUS, CATIA, Hyperworks, Solid Works, Python, Matlab, Visual Basic for Applications, Imageware, and Drafting

**Hardware:** Servo Hydraulic Tensile Test Machines, Scanning Electron Microscope (SEM), and ATOS White Light Scanner

**Languages**

Fluent in: English, Serbo-Croatian

**Publications**

Makas, A., Avallone, J., MacKinnon, R., Atodaria, I., and Peralta, P. (2013). “Variability on nucleation and growth of short fatigue cracks due to material anisotropy in aluminum 2024-T351.” *Journal of Intelligent Material Systems and Structures*, *24*(17), 2148-2167.