Thomas Bouchenot

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Objective

To gain hands-on, real-world experiences though research-oriented opportunities in mechanics of materials.

Education

University of Central Florida (UCF)

Doctor of Philosophy in Mechanical Engineering — Expected: Fall 2019
GPA: 3.79/4.00

Master of Science in Mechanical Engineering, Mechanical Systems — Fall 2015
GPA: 3.75/4.00

Bachelor of Science in Mechanical Engineering, Mechanical Systems — Summer 2013
Honors in the Major Thesis: Thermomechanical Fatigue at V-Shaped Notches — GPA: 3.72/4.00
Accelerated Bachelors to Masters Student
Graduated Cum Laude with University Honors and Honors in the Major

Research Experience

Graduate Research Assistant — Mechanics of Materials Research Group, MAE — Fall 2013 – Present

- Assisted research efforts in areas of material response, deformation, and lifing under uniaxial and multiaxial loading conditions in projects funded by Siemens and the Air Force Research Labs.
- Material characterization included creation, application, and simulation of non-linear kinematic hardening models and alternative plasticity and creep models.

Summer Researcher — Air Force Research Labs — Summer 2013, 2014, 2015

- Compiled data and developed a condition-dependent lifing model for next-generation reusable hypersonic aircraft during a summer research appointment at the Structural Sciences Center, Hypersonic Sciences Branch, Aerospace Systems Directorate at Wright Patterson Air Force Base in Dayton, Ohio.
- Second summer appointment focused on applying traditional life prediction models to existing data.
- Third summer appointment involved fatigue testing and data analysis.
- Funding awarded through American Society of Engineering Education (ASEE).

Undergraduate Research Assistant — Mechanics of Materials Research Group, MAE — Fall 2011 – Summer 2013

- Worked on a variety of projects and assisted other lab members and learned how to operate mechanical testing equipment and create accurate simulations.
- Created ANSYS input files used to simulate candidate mechanical properties, analyzed creep and life, and wrote a post processing code to calculate Hill's stress in a Siemens funded project to create a model of directionally-solidified material.

Directed Studies Assistant — CREOL, MAE — Spring 2013

- Partnered with the College of Optics and Photonics (CREOL) to conduct mechanical testing on polymer composite materials. One project focused on polymer tubes of variable cross sections, and another focused on optical fibers with a large diameter core.
- Co-authored resulting journal article submission to Nature.

Research and Mentoring Program — Mechanics of Materials Research Group, MAE — Fall 2011 – Spring 2013

- Developed an honors undergraduate thesis focused on the relation between local and remote stress in a V-shaped notch subjected to thermomechanical fatigue. Learned the relevant theory, programming, parametric simulation, and analysis methods in the process.
- Awarded funding from the Work Group of Central Florida through the Research and Mentoring Program.

Design Experience

Tooling Engineer — Harris Corporation — Fall 2011 - Spring 2012

- Abandoned Oil Well Monitoring System - Developed to provide routine leak analysis on recently abandoned oil wells in the Gulf of Mexico as part Senior Design project funded by Harris Corporation.
- The project involved extensive research of costal regulations, design and simulation of prototypes, and manufacturing of a final product.

Academic Experience

Graduate Teaching Assistant MAE, UCF Spring 2016 – Present

- Held office hours to aid students in mastering concepts related to EML 4225: Introductions to Vibrations and Control. Duties also included grading homework, quizzes and exams.

Teaching Assistant MAE, UCF Fall 2011 – Summer 2012

- Graded assignments and assisted students with failure theories, shafts, bearings, and other topics included in EML3500: Machine Design.
- Provided an excellent opportunity to master the material and learn to convey information to students.

Publications and Presentations

- Shabahang, S., Tao, G., Kaufman, J., Qiao, Y., Wei, L., Bouchenot, T., Gordon, A. P., Fink, Y., Bai, Y., Hoy, R., Abouraddy, A.F. "Controlled Fragmentation of Multimaterial Fibers and Films via Polymer Cold-Drawing". Nature (Accepted), 2016.
- Bouchenot, T., Ambrose, J., Mejia, C., Gordon, A. P., and Penmetsa, R. C. "Title to be determined". Journal of Pressure Vessel and Piping (PVP), ASME (In-Progress), 2016.
- Bouchenot, T., Felemban, B., Mejia, C., and Gordon, A. P. "Development of Non-Interaction Material Models with Cyclic Hardening". Journal of Engineering Materials and Technology (Submitted), 2016.
- Bouchenot, T., Felemban, B., Mejia, C., Dyer, Z., Shinde, S., and Gordon, A. P. "Application of Ramberg-Osgood Plasticity to Determine Cyclic Hardening Parameters". ASME 2016 Power & Energy Conference & Exhibition (Submitted), Charlotte, NC, June 26th-30th, 2016.
- Bouchenot, T. and Gordon, A. P. "A Simplified Cyclic Hardening Characterization of 2.25Cr-1Mo" ASTM E08 Fatigue and Fracture November 2015 Committee Week, Student Competition, Tampa, FL, November 15th-18th, 2015.
- Sedlack, M., Bouchenot, T., Jasmin, A., Keasey, M., and Gordon, A. P. "Prediction and Characterization of Thermomechanical Buckling Fatigue in Combined Extreme Environments" SciTech 2016 (Accepted), American Institute of Aeronautics and Astronautics, San Diego, CA, January 4th-8th, 2016.
- Gordon, A. P., O'Nora, N., Bouchenot, T., Ambrose, J., Jones, N., and Penmetsa, R. C. "A Thermoviscoplasticity Model for Ti-6242S under Creep-Fatigue Conditions". SciTech 2016 (Accepted), American Institute of Aeronautics and Astronautics, San Diego, CA, January 4th-8th, 2016.
- Gordon, A. P., Bouchenot, T., Penmetsa, R. C. "Microstructurally-Informed Modeling of IN617 and Ti-6242S Under Combined Extreme Environments". SciTech 2015, American Institute of Aeronautics and Astronautics, Kissimmee, FL, January 5-9, 2015.
- Bouchenot, T., and Gordon, A. P. "A Finite Element Analysis Approach to Deformation Under Non-Isothermal Fatigue". 2014 UCF MAE Graduate Research Day, Orlando, FL, February 28, 2014.
- Bouchenot, T., Gordon, A.P., Shinde, S., and Gravett, P. "An Approach for Stabilized Hysteresis Modeling of Non-Isothermal Fatigue of a DS Ni-base Superalloy". Special Issue of ASTM Journal of Materials Processing and Characterization, 2014.
- Bouchenot, T., Gordon, A.P., Shinde, S., and Gravett, P. "A Hysteresis Model for a DS Superalloy Under Thermomechanical Fatigue". ASME International Gas Turbine Institute, Dusseldorf, Germany, June 16-20th, 2014.
- Bouchenot, T., and Gordon, A. P. "Peak and Valley Hysteresis Prediction of Thermomechanical Fatigue". Thirteenth International ASTM/ESIS Symposium on Fatigue and Fracture Mechanics (38th National Symposium on Fatigue and Fracture Mechanics), Student Competition, Jacksonville, FL, November 13th-15th, 2013.
- Bouchenot, T., "A Simplified Approach to Thermomechanical Fatigue and Application to V-Shaped Notches". Burnett Honors College, University of Central Florida, Orlando, FL, August 01, 2013.
- Bouchenot, T., and Gordon, A. P. (2012) "A Modified Neuber's Rule for Thermomechanical Fatigue at V-Shaped Notches". Showcase of Undergraduate Research Excellence (SURE), Orlando, FL, April 05, 2012.

Skills

- Proficient in engineering programs - AutoCAD, Mathcad, MATLAB, Solidworks, NX 7.5, ANSYS, and ABAQUS
- Knowledge of FORTRAN and programming with Excel macros
- Able to operate a uniaxial test frame, hardness tester, impact test machines, and other equipment used to determine mechanical properties of materials

- Capable of operating and tuning an FDM 3d printer
- French/American dual citizenship
- Bilingual – French/English

Honors/Awards

- Founders' Day Award – First place for Honors in the Major thesis in sciences, engineering, and technology
- Undergraduate Cum Laude
- University Honors
- Honors in the Major
- ASEE Summer Faculty Fellowship Program Awardee
- Dean's List
- President's Honor Roll
- Pi Tau Sigma - Member
- Bright Futures Florida Academic Scholars Scholarship - Awarded for SAT scores and High School GPA
- Eagle Scout – Troop 8, Florida