JEFFREY ROBERGE

101 Clarence Ave   **E-mail** jeffrey.roberge@gmail.com
Severna Park, MD 21146   **Phone** (860) 754-6785

OBJECTIVE

Mechanical engineer with eight years of strong computational methods and software experience, looking to develop analytical applications for the purpose of aiding in structural and aero-thermal design of gas turbine engines.

PROFESSIONAL EXPERIENCE

Pratt & Whitney, East Hartford, CT   July 2024 - Present
Principal Mech. Eng., Systems Core Engineering Tools & Methods (ED&SI Core ETM)

- Designed and developed pre- and post-processing tools for finite element analysis (FEA), with a focus on low and high cycle fatigue lifing systems, fracture mechanics, creep, strength and burst predictions.
- As mentor, developed new hire skills in Agile software, finite element analysis, and computational mechanics.
- Partnered with Human Resources and the leadership team to source top engineering talent for engineering.

Pratt & Whitney, East Hartford, CT   Dec 2020 - July 2024
Senior Mech. Eng., ED&SI Core ETM

- On a large multidisciplinary team, quantified powder nickel occlusion and fracture risk using a custom Monte Carlo simulation, and advised fleet management plans to mitigate this billion dollar flight safety issue.
- Increased engineers' analysis speed by developing nearly 40 software applications for a new FEA toolset.
- Built training and up-skilled engineers, helping with technical issues in the new FEA solver environment.

Pratt & Whitney, East Hartford, CT   Dec 2016 - Dec 2020
Mechanical Engineer, Engineering Development Program

- Analyzed military high pressure compressor (HPC) static structures and cases during a preliminary design phase
- As part of the military HPC heat transfer group, iterated with the Design and Structures group to provide an HPC configuration that satisfies material capability and blade tip clearance requirements.
- Studied secondary flow structure by carrying out computational fluid dynamic analyses of the HPC's scavenge paths.
- Post-processed vibratory and thermal couple data from engine test to validate current modeling assumptions and limits.
- Performed part shape optimization via design of experiments and surrogate modeling.

Structural Optimization Laboratory, Storrs, CT (sol.engr@uconn.edu)   Sept 2014 - Sept 2016
Graduate Assistant / Teaching Assistant, Department of Mechanical Engineering

- Developed computational modeling algorithms for obtaining the effective properties of bone scaffold implants and composites, and for designing patient-specific bone scaffolds to expedite rehabilitation of critical size bone defects.
- Performed experimental studies to determine design for additive manufacturing rules for printed plastic components.

SKILLS

Programming: Java, Python, C++, Perl, Lua, MatLab, Bash; Linux (RHEL, Ubuntu) and Windows
Mechanical: FEA, ANSYS MAPDL, NX, NXOpen API, Simcenter Multiphysics, Abaqus, ISight, SmartUQ;
Software Skills: Git, REST APIs, Agile Development and Scrum, Supercomputing, IBM LSF, LaTeX, Docker;
Certifications: AWS Cloud Practitioner

EDUCATION

Master of Science, Mechanical Engineering
University of Connecticut, Storrs, CT   GPA 4.17/4.00   Sept 2016
THESIS - Computational Design of Ceramic Bone Scaffolds Fabricated Via Direct Ink Writing

Bachelor of Science, Biomedical Engineering
University of Connecticut, Storrs, CT   GPA 3.76/4.00   May 2013

PUBLICATIONS

Jeff Roberge and Julián Norato, "Computational design of curvilinear bone scaffolds fabricated via direct ink writing," Computer-Aided Design, Vol. 95, February 2018, Pages 1-13.