

# Jeffrey Roberge

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## 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.

## Programming

Java • Python • C++ • Perl  
• Lua • MatLab • Bash

## Mechanical Skills

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 • AWS

## Certifications

2024 AWS Cloud Practitioner

## Interests

Computational Mechanics  
• Numerical Methods • Finite  
Element Analysis  
• Optimization

jeffrey-roberge  
 jrr07008

## PROFESSIONAL EXPERIENCE

Jul. 2024 –  
Present

**Pratt & Whitney**  
PRINCIPAL MECHANICAL ENGINEER  
System Engineering Tools & Methods

East Hartford, CT



- Design and develop 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, develop new hire skills in Agile software, finite element analysis, and computational mechanics.
- Partner with Human Resources and the leadership team to source top engineering talent for engineering.

Dec. 2020 –  
Jul. 2024

**Pratt & Whitney**  
SENIOR MECHANICAL ENGINEER  
System Engineering Tools & Methods

East Hartford, CT



- 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.

Dec. 2016 –  
Dec. 2020

**Pratt & Whitney**  
MECHANICAL ENGINEER  
Engineering Development Program

East Hartford, CT



- 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.
- Performed part shape optimization via surrogate modeling.

Sep. 2014 –  
Sep. 2016

**Structural Optimization Laboratory**  
GRADUATE ASSISTANT / TEACHING ASSISTANT  
UConn Mechanical Engineering Department

Storrs, CT



- Developed computational modeling algorithms for obtaining the effective properties of bone scaffold implants & 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.

## DEGREES

2016 **Mechanical Engineering**  
M.S. • UConn 4.17/4.00

2013 **Biomedical Engineering**  
B.S. • UConn 3.76/4.00

## PUBLICATIONS

2018 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.