

Brett Lyons
bclyons@alum.bu.edu
584 Main St.
Portland, CT 06480
(305) 710-4004

Dear Sir or Madam:

I would like to express my interest in a Design and Analysis Engineering position through Monroe Staffing. You will note from my enclosed résumé that I am currently employed as an Engineering Intern at TurboVision Consulting Group, Inc. TurboVision is an established consulting group contracted by several major industrial gas turbine manufacturers including Mitsubishi Heavy Industries and Kawasaki Heavy Industries. Composed entirely of senior engineers with over 30 years of experience, their focus is on taking the expertise and knowledge developed in the highly rigorous design of jet engines and applying it to the industrial turbomachinery setting. Working alongside these senior engineers I have been helping to develop their new approach to multistage axial compressor airfoil design intended to reduce overall development time compared to current aero-engine compressor design practices.

Over the past year and a half I have worked on multiple projects, including validation of our in-house CFD software and airfoil incidence range modeling. In my main project I have designed a preliminary analysis system to quickly and automatically create, mesh, and structurally analyze rotor and stator CAD models using two open-source software applications, GMSH and CalculiX. GMSH is a three-dimensional finite element mesh generator and CalculiX is a finite element analysis application with ABAQUS-style input formatting used by both MTU and the DLR. The primary goal of this project is to use the preliminary analysis system to reduce the overall design time. The project's secondary goal is to test the accuracy and reliability of the open source software for use in a final structural analysis system in order to reduce the overall project costs associated with getting a license for other FEA software.

After receiving my Aerospace Engineering degree from Boston University and working diligently as an aerospace engineer, I now possess the skill set and dedication to be an asset to your company. During my time at TurboVision I have quickly learned to work with many new software programs, including neural networking and finite element analysis applications. In my work designing an automated system to fully mesh and analyze the stress and modal frequency response of compressor rotor blades and stator vanes, I have learned to work independently while consulting with senior engineers. At Boston University, I had the opportunity to take courses that helped develop my analytical, design and problem-solving skills. As the leader of a five-person group designing a unique solar powered unmanned aerial vehicle for my Senior Design Project, I obtained experience creating an autonomous aircraft's autopilot system using Simulink, designing and modeling the aircraft control surfaces, and complying with FAA certification standards (specifically FAR Part 23 and Part 35). In my study of control theory I have gained extensive laboratory experience designing classical control schemes for numerous electrical servomechanisms, as well as designing sensor circuits using modern sensory equipment including accelerometers, pitot tubes, and strain gauges. During my time as a Job Site Manager for College Pro, I have gained extensive experience in project planning, financing, and tracking, as well as managing and training employees of various skill levels.

I consider that my credentials and interests match your requirements, and I am very interested in pursuing a career with Monroe Staffing. I have enclosed a copy of my résumé, which further details my qualifications and accomplishments. I would like very much to meet with you at your convenience to discuss available Design and Analysis Engineering positions. You may contact me via e-mail (bclyons@alum.bu.edu) or by telephone (305-710-4004). Thank you for your time and consideration.

Sincerely Yours,
Brett Lyons

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OBJECTIVE

To secure a position as a Design and Analysis Engineer focusing on the design, analysis, and specification of motion control devices.

RELEVANT WORK EXPERIENCE

TurboVision Consulting Group, Inc.

May 2011 – Present

Engineering Intern

Miami, FL

- Developed an automated method using 3D finite mesh generator software GMSH to create and fully mesh CAD rotor/stator models for the preliminary phase of the rapid design system used in the creation of gas turbine engine compressor blading.
- Built an automated system to analyze the stress and modal frequencies of the rotor/stator models using the 3D FEA program CalculiX.
- Wrote interface software to translate GMSH files into ABAQUS formatting for CalculiX.
- Examined effects of manufacturing tolerances on the stress and modal frequency of rotors/stators and developed methods to accommodate for the variability during tuning.
- Created an improved airfoil incidence range model for use in the preliminary compressor design process using neural networking software Eureka and Formulize.
- Documented all processes and program codes to aid integration into the design system and completed regular progress reports on each project.
- Communicated and coordinated with senior engineers from multiple disciplines including Structural, Aerodynamic, and Manufacturing Engineering.

College Pro Painting

April – October, 2007 – 2010

Job Site Manager

Boston, MA

- Managed and trained five four-person painting crews.

SKILLS

- **Computer:** Inventor, AutoCAD, ABAQUS, SolidWorks, C++, MATLAB, Simulink, LabVIEW, UNIX, Microsoft Office. Familiar with Fortran, Visual Basic, ANSYS.

EDUCATION

Boston University College of Engineering

Boston, MA

Bachelor of Science, Aerospace Engineering

May 2010

Related Coursework

- Process Modeling and Control
- Flight Structures
- Flight Vehicle Design I, II
- Statistics and Quality Engineering
- Heat Transfer
- Engineering Economy

RELEVANT PROJECT EXPERIENCE

“H.A.L.E.R.T. Solar Powered Aircraft”

September 2009 – May 2010

Group Leader

Senior Design Project, Boston University

- Led five-person group to design a solar powered UAV, including the design and structural analysis of the wing and fuselage using SolidWorks and detailed hand analysis techniques.

“Real-Time Position Sensing with Accelerometers”

February 2009 – May 2009

Team Leader

SCuD Lab, Boston University

- Led four-person team to create an accelerometer sensor circuit and write a program to extrapolate real-time positioning data of an oscillating platform using LabVIEW.

AFFILIATIONS

- Member, American Institute of Aeronautics and Astronautics

2009 - 2012