

ALEXANDER BENSON

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Skills

- Six years of manufacturing and assembly experience, including:
 - Composites
 - Machining
 - Automated bonding w. cobots
 - 3D printing
 - Injection molding w. robots
 - Manual assembly and bonding
- Experience with Engineering Analysis:
 - Electromagnetic Simulation
 - Multiphysics Analysis
 - EV Motor Design
 - Statistics:
 - Process control
 - Multivariable regression
 - Finite Element Analysis (FEA)
 - Optimization
 - Design of experiments
 - Vibrations analysis
 - Elementary control systems design
- Experience manufacturing in a regulated environment:
 - ANSI9100
 - ANSI/RIA 15.06
 - Boeing specifications
 - ISO 9000
 - ISO/TS 15066
- Experience with MATLAB, R, and Python programming.
- Proficient in designing, assembling, and debugging tools and fixtures.
- Proficient with CAD software – CATIA V5, SOLIDWORKS, AutoDesk Inventor.
- Proficient with ANSYS Simulation Software: Structural, Modal, Maxwell, RMXprt, and Thermal Analysis.
- Leadership experience demonstrated through volunteer work.

Work Experience

Manufacturing Engineer

Jan 2017 – Present

Tool Gauge (TG) | Tacoma, WA

- Established a reputation for high-quality work delivered ahead of schedule.
- Ensured manufacturing compliance to Boeing specifications, AS9100 requirements, and OSHA robotic safety requirements (ANSI/RIA 15.06).
- Utilized 3D (FDM) printers to produce on-demand fixtures, test processes, and reduce the cost of existing fixtures by over 50%.
- Designed cobotic cell supporting six part configurations saving an estimated \$200,000 per year, featured on the [Universal Robots website](#).
- Developed software tool for tracking changes in customer purchase requests, saving hours of work every month for project managers and executives.
- Led sprue picker (robotics) implementation of TG's next-generation presses.
- Designed quick-change system for sprue picker end of arm tools.
- Programmed complicated picking operations for tools with intricate cavities.

Associate Civil Engineer

Jun 2016 – Aug 2016

City of Seattle | Seattle, WA

- Facilitated project coordination and inter-department communication.
- Developed procedures detecting conflicting projects in critical locations.
- Managed and assisted communications between public and private industry stakeholders throughout the City of Seattle.

Teaching Assistant: Computer Assisted Machining and Computer Assisted Design

Apr 2015 – Jun 2016

Western Washington University | Bellingham, WA

- Walked students through problem-solving methods when programming in G-Code, using CAD (CATIA V5), and CAM (CATIA V5 and Vericut).
- Demonstrated troubleshooting abilities when evaluating and correcting G-Code and CAD models submitted by students.

Student Tutor: Physics, Chemistry, Math, and Statistics

Sept 2013 – June 2016

Western Washington University | Bellingham, WA

- Educated students in technical subjects, primarily through problem-solving, intensive tutoring was possible when time allowed.
- Collaborated with both supervising instructors and a team of my peers.

Volunteer Experience

Chair, Society of Manufacturing Engineers

Seattle Chapter 39, Jan 2021 – Present

- Coordinated and directed monthly chapter meetings.
- Managed chapter recovery during the Covid-19 pandemic.
- Networked with local industry partners and organizations to arrange tours, contacts, and speaking events.
- Supervised outreach events to student and national chapters.
- Led chapter executive infrastructure improvements.

Chair-Elect, Society of Manufacturing Engineers

Seattle Chapter 39, Oct 2019 – Jan 2021

President, Society of Manufacturing Engineers: WWU Chapter

Jun 2015 – Jun 2016

- Organized community events, groups for multiple competition entries, inter-club co-operation.
- Facilitated the development of 3D printing maker space for the university engineering department.

Education

M.S. Mechanical Engineering

Grad: 8.2022, *Anticipated* GPA 4.0

Saint Martin's University (SMU) | Lacey, WA

Thesis: Methods for Improving the Performance of an IPMSM for EV applications

- Electromechanical Machines
- Control Systems Design
- Optimization with MATLAB
- Vibrations
- Photovoltaics
- Finite Element Analysis (FEA)
- Robotics

Projects:

- Literature review of electric aerospace: fuels, motor designs, and materials.
- Design and implementation of a multi-language Jupyterhub server for computer science education and engineering analysis.

B.S. Manufacturing Engineering, ABET Accredited Mathematics Minor

Grad: 6.2016, GPA 3.25

Western Washington University (WWU) | Bellingham, WA

- Advanced CAD
- Advanced CAM
- Automation and Control
- Composites Design and Manufacturing
- Design for Manufacturing
- Design of Tooling
- Industrial Robotics
- Plastics Design and Manufacturing
- Statistics with Calculus