

Vernon Lee Jr.

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OBJECTIVE: To work on an engineering team where I can use my skills and education to develop new products and technologies.

TECHNICAL SKILLS

- Strong team collaboration skills. Work closely with team members to achieve engineering goals
- The ability to work alone and to be self-motivated to achieve goals to agreed timescales and deadlines.
- Ability to solve problems by using mechanical engineering science, mathematics and I.T. knowledge.
- The ability to produce professional designs taking account of technical, environmental, ethical and commercial considerations.
- Experience reading and interpreting blue prints, scales, and engineering specifications and drawings.
- Familiar with building materials and project management life cycle.
- Extremely accurate and attentive to detail.
- Experience operating a variety of commercial machinery.
- Excellent analytical and time management skills.
- Able to show creativity and innovation in solving problems.
- The ability to plan, prioritize and make judgements on the basis of a range of available data, to reach deadlines and under pressure
- The ability to communicate ideas and results clearly, concisely and effectively both orally, by giving presentations, and in writing.

EDUCATION

University Of Massachusetts, Lowell, Ma (UMass Lowell)
B.S. Mechanical Engineering (graduated August-2015)

Roxbury Community College, Boston, Ma
A.A. Physical Science (graduated May-2012)

Robert D. Marshall Carpenter's Training School, Boston, MA
Massachusetts Carpenter's Apprenticeship Training Program (graduated May-2001)
The Commonwealth of Massachusetts/Division of Apprentice Training Certificate (September-2001)
Associated General Contractors of America- Journeyman Certificate (November-2001)

RELATED COURSEWORK:

- All phases of carpentry concrete forms, windows, drywall, cabinet making, doors, hardware, and ceiling installation. Blue print reading, Building code, OSHA training, Job site safety and management, Material estimating, carpentry mathematics, and labor history.

RELEVANT ACADEMIC PROJECTS

Design of Air Conditioning System

- Design an air conditioning system for a 100ft x 80ft x12ft research laboratory. OBJECTIVES OF PROJECT. Determine the total amount of air exchange required to satisfy OSHA requirements. Calculate for heat and moisture inputs rates during winter and moisture removal rates for the summer. Calculated and selected duct sizes and shapes required for the input and exit of air. Determine locations in the room ceiling or wall for installing the air ducts. Determined whether to purchase equipment "off the shelf" or custom order. Estimated the cost of equipment that was needed. All facts, findings, and calculations were expressed in a technical report.

Design of Baseboard Heater System

- Designed a base board heating system for 8x10x2.5m apartment. The designed was based outside temperature of Boston in the winter. Factors in design that were determine were the thermal properties , convection coefficient inside/outside of the apartment wall, the heat load, thermal condition, pipe length, fin number, fin size, water flow rate, and other properties. A daily cost of heating for the apartment was estimated, and the best economical and environmentally friendly fuel source was chosen to use. All calculation and figures were express in a technical report.

Senior Capstone Project

- Collaborated with a team to develop a universal, low profile apparatus for mounting HDL-64, HDL-32, and VLP-16 Velodyne Lidar to fit on any vehicle. Release feature allowed for the Lidar to be easily removed from the mount with the mount still on the vehicle, and easily placed back on the mount without losing leveling and positioning adjustments. The project was done over a semester. The team work on the project from start to finish using Autoliv design and manufacturing process. Project planning, Concept Definition, Product & Process Development, product & Process Validation, and Product Launch. Designs were drawn and FEA was tested using Solidworks cad package. The project was sponsored by and built for Autoliv Active Safety in collaboration with the Capstone Coordinator at the University of Massachusetts Lowell. The mount was required to quickly and securely attach to any vehicle while maximizing the field of view of the Lidar. The apparatus also featured leveling and positioning mechanisms to optimize data collection. A quick release features was also integrated into the mount as per design requirements. Quick

SolidWorks Projects

- Designed a Guide-Rod Assembly, Flashlight Assembly, and an Electrical Box with all the inside components using Top down Assembly modeling. The projects provided a solid foundation in SolidWorks and they also helped in exploring the user interface, Command manger, menus, toolbars and modeling techniques to create parts, assemblies and drawing in an engineering environment.

Manufacture Drill Tap and a Punch

- Manufactured, fabricated and measured the accuracy of a mechanical assembly from design drawing using lathes, milling machines, drill presses and other conventional processes. The object of the project was to develop a broad understanding of manufacturing operations and their relationship to engineering product design.

Design, Manufacture and Testing of a Three-Position Double-Dwell Linkage

- May 2014– June 2014 over the course of a semester, our team of four designed a four bar positioning linkage coupled with a four bar Grashof driver linkage. Each team was responsible for the design of the four bar positioning linkage and the selection of the four bar Grashof driver linkage. The final design was manufactured and tested, and a final report was submitted describing the design and performance of the prototype linkage. A total of eight progress/memo reports were written during the course of the semester. In addition to developing experience in a design project and working in a team environment, the project helped develop technical-communication, time-management and project-management skills.

Finite Element Project

- Worked in a two person team all semester. Used numerical (finite element) and analytical methods to investigate the mechanical behavior of a long and slender cantilever beam that was subjected to: Uniaxial tension, Bending, Torsion, Combined loading, and Buckling. Made power point presentation and report to express the data that was recorded. The Finite element packages used were FEMAP, Abaqus and Hyper mesh.

Cam Design Project

- Worked in a three person team designed, manufactured, and tested a cam. A cam was designed in Solidworks and Matlab. The cam was then cut by CNC machine and tested in a cam follower. All information was used in a report and presented to the class. In addition to developing experience in a design project and working in a team environment, the project
- helped develop technical-communication, time-management and project-management skills

Multi-stage Load cell Transducer Design

- Developed a multi-staged load cell to accommodate three orders of magnitude load. Strain gage measurement system for a beam was used to design a multi-staged load cell. The engineering team had to calculate, design, test materials using various engineering theories. A proposal was submitted to verify the process of the project (b.o.m., materials, time). Once the proposal was accepted materials were tested. A weekly status was written to mark different stages of the project. The final report address the test setup, calibration, test procedure, digital acquisition system,

measurement made, numerical processing of the data, problems with the data collection, digital signal processing, accuracy, analog measuring devices used, and other related information to substantiate the results presented. All findings, fact, and figures were represented in a final report

Efficiency of rolling cars down an incline plane

- Designed and built model scale cars and ramps. Tested various physics formulas, engineering design concepts and theories. The project is being used in physics lab at Roxbury Community College.

EXPERIENCE:

VL Customs, Boston, MA (2005-present)

- Own and operate a small apparel decorating business.
- Print screening, Embroidery, Sign & Banner Making, Vehicle Lettering.
- Worked with various groups and organizations to make fundraising and promotional products.
- Design apparel and apparel line artwork for small apparel companies.

Local 40 Carpenters Union, Cambridge, Ma (1997-2011)

- Worked in all phases of carpentry throughout my career as a carpenter from start to finish. The type of work includes concrete, column, slab, finish, exterior & interior panel, framing, windows, trim & molding, foundation, cabinet installation, doors & hardware, and structural work.

Autoliv, Lowell, Ma (Jan 2015-May 2015) Capstone Project/Mechanical Engineering Intern

- Worked on a design and development team to build universal Lidar mounts for automobiles.
- Planned all stages of the project.
- Held weekly meeting with Autoliv professional staff (capstone advisors)
- Design mount using Solidworks CAD package.
- Testing designs using FEA analysis software.
- Created weekly status reports of projects progress.
- Created Gantt charts, bill of materials,
- Built and assembled project in house.
- Tested design reported all findings and facts.

Skills:

Graphic software

- Solidworks, Pro Engineer, Matlab, Abaqus, DynaCam, Simulink, Hyper Mesh, Femap, SimulationXpress.
- Corel Draw (x3,x4,x5,x6), Adobe Illustrator, Photoshop(3,4,5,6), Forte Embroidery Suite Pro
- Roland Studio Pro, Roland Cut Pro, Stone Cut Pro, Poly Twill Plus Pro

Commercial Machinery

- Embroidery Machine, Sign cutting machine, Heat press, Print screening equipment.
- Aerial Lift, Spider Lift, Boom Lift, Platform lift, Articulating Boom lift, and Scissor Lift
- Bridgeport Mill Machine, CNC Machine, Small CNC Machine, Lathe Machine
- Table saw, Jointer and planer, Router Machine, Hilti and Ramset

Microsoft Office

- Word, Excel, Power Point

Clubs and Organizations

- Local 40 Carpenters Union
- UBC- United Brotherhood of Carpenters and Joiners of America
- NBSE - National Black Society Of Engineers
- ASME- American Society of Mechanical Engineers