# Bio/Introduction

I am a

# Professional Experience

1. Internships and Work Experience
   1. Ernie Ball
      1. Introduction
         1. Ernie Ball manufactures high quality electric guitars and basses, and I had a wonderful experience working there for 1 year as a manufacturing engineering intern. As a valued member of the engineering team, I contributed to many projects from supporting robot manufacturing cells to data analytics to product development.
         2. All my projects required working with many departments throughout the company and sometimes foreign suppliers. Some highlights from my major projects are shown below.
      2. Robot Manufacturing Cells
         1. I helped to transition the manufacturing of guitar necks and bodies from manual processes to a new, automated robotics cell
         2. The robotics cell incorporated a 6-axis robotic arm, RFID system, computer vision system, and CNC mill.
         3. I implemented hundreds of programs and 25 product families, and the neck cell now makes up approximately half of all neck production at Ernie Ball with improved quality and traceability compared to the previous manufacturing processes.
      3. Product Development
         1. I assisted with the design of two major instruments, as well as preparing the factory for mass production of these instruments in 2018.
            1. The Stingray 4 is one of the most iconic basses in history. I
            2. St Vincent is the first female musician to have a signature guitar (shown to the right). I redesigned this instrument with dual humbuckers as well as a new body shape, pickguard, and pickup covers. I oversaw several stages of prototyping and design changes to reach the final design.
      4. Data Analytics
         1. Scrap and Rework Analysis
            1. Using Python and Minitab, I analyzed 1 year of data from scrap and rework reports to determine the main factors affecting rework. This is difficult due to the high mix, low volume production of Ernie Ball, as well as the high degree of interaction between factors (many combinations of models, wood types, etc.).
            2. I developed a generalized linear model to account for all possible combinations of products and determined which combinations are contributing to the majority of scrap and rework.
            3. This allowed the manufacturing engineering department to target specific areas for further process improvement projects, as well as providing easy-to-read, visual representations of the results to top management.
         2. Automating the Milling Department Scheduling System
            1. Historically, the milling department scheduled the production of roughly 10,000 instruments per year by hand. Common problems include:

Difficulty accounting for machine downtime

Impossible to make long term projections

Imbalanced production schedules

Slow schedule adjustments

Large amount of product knowledge is required

* + - * 1. I formulated this as a combinatorial optimization problem and developed a decision support system (DSS) for the milling department. This automates the scheduling process and provides a friendly user-interface. The program can schedule 450 different instruments on 7 machines with 16 people in around 10 seconds.
        2. The program is implemented in Google Drive to allow easy collaboration between the production planning, manufacturing engineering, and milling departments.
    1. Skills Learned
       1. Product Development
       2. Production Planning
       3. Collaborating with Multiple Departments
       4. 3D Modelling (Creo)
       5. Engineering Drawings
       6. 3D Printing
       7. Working with Foreign Suppliers
  1. ViaSat
     1. I’m excited to be working at ViaSat next summer as a New Product Introduction Engineering Intern where I will be working on RF systems.
  2. Boeing
     1. As part of the Boeing Engineering Accelerated Mentorship program (BEAM), I worked on engineering challenges and presented a project plan to senior Boeing engineers.
     2. I led a project group of 4 people to develop a plan to implement RFID tracking of airline bags. This included a technical feasibility assessment and cost-benefit analysis.
  3. Cal Poly
     1. Digital Fabrication Technician
        1. I worked as a technician at Cal Poly’s Digital Fabrication Laboratory where I maintained and operated laser cutters, 3D printers, CNC mills, and a plasma cutter. I also trained students to use these machines and assisted them with manufacturing projects.
     2. Physics Tutor
        1. I tutored low income students in introductory physics courses through the Economic Opportunity Program (EOP)
     3. Subway
        1. I worked for 1 year at Subway where I was quickly promoted to a shift supervisor. I supervised teams of 4-7 people, trained new employees, and provided employee performance reviews to the manger.

1. Research
   1. Introduction
      1. Research Interests
         1. Operations Research (emphasis on RFID)
         2. Flexible Electronics
         3. Machine Learning/Data Analytics
         4. 3D Printing
      2. Authored Papers
         1. Drone Routing
         2. Effect of AI on Price Discrimination
         3. Smart Cities
         4. Manufacturing Coverage
         5. Improving the Treatment of Cal Poly Faculty
      3. Professors Worked With
         1. Dr. Freed
         2. Dr. Pan
         3. Dr. Rong
         4. Dr. Kief
      4. Conferences Attended
         1. IDTechEx 2017, Santa Clara
         2. RFID Journal Live, Orlando
   2. Machine Learning and Data Analytics
   3. Operations Research (emphasis on RFID systems)
   4. Flexible Electronics
      1. Printed sensors
      2. Printed antenna
      3. Printed passive components
2. Projects and Education
   1. Introduction
      1. I am a 3rd year Industrial Engineering major at California Polytechnic State University, San Luis Obispo (Cal Poly SLO). I have done club-related and personal projects such as building myself a 3D printer. I have always excelled in school, and have worked as a TA/LA for two professors teaching process improvement fundamentals and metal casting. I taught myself programming and currently use Python, mainly for data analysis and operations research. I am proficient with the TensorFlow, NumPy, , Pandas, and Matplotlib libraries.

# Personal Interests

1. Introduction
   1. Upon seeing my interests, I may appear to be
2. Piano
   1. I have loved playing piano since I was 11. My favorite composer is Chopin and my favorite piece to play is the Fantasia Impromptu (but I can’t play it this fast!).
3. Philosophy
   1. I enjoy reading, learning about, and discussing philosophy. My favorite philosophers are Plato and Camus.
4. Running
5. Rock Climbing
6. Journaling

# Contact Information

1. Name
2. Email
3. LinkedIn
4. Portfolium

# Resume

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