**What strength do you believe you can uniquely contribute to a company this summer through the Xtern program?**

I believe my strongest asset to any project is my ability to contribute creative and often innovative ideas. Although my current experience is somewhat limited, I pride myself on using the knowledge I've gained through my classes and work opportunities to look at problems through as broad a scope as possible, ultimately deciding on the most logical, efficient and innovative option. I am also constantly looking for creative and beneficial extracurricular uses for my out of class work time in order to further broaden my view.

That being said, the strength I feel most contributes to the student I am today is my love of learning. My inborn curiosity for how things work fuels my drive to understand new products and the methods behind completing projects. I am never tied to one idea and always open to criticism when related to my performance in the work place.

**Other than technologies or software you may use, what do you hope to learn from your time at a company?**

I hope to learn more about working in a professional, design driven environment with people who share my interests and are contributing to a common good. Although I have worked on multiple design projects in the past, I have yet to complete one professionally and am most looking forward to the chance to have an impact on a product that will be used by consumers. Something that will contribute to my experience as an engineer and help me find the specific field I will want to build a career in after graduation.

I also hope to learn about the ins and outs of project schedule management. Even though I have been introduced to this topic before within my engineering classes and my co-op last summer with Turner Construction, I still find the process of planning projects that last years on end interesting and hope to learn a little more about the methods in which the managers and engineers do so.

**For the Mechanical Engineering – Robotics Portion:**

**What experience do you have working on projects and/or in a role related to this opportunity?**

I have experience working on AEV design within my engineering course work. The goal of this project was to design and implement a model AEV that navigated the route given by the course syllabus. The team I was leading designed multiple version of the monorail system and ran diagnostic tests in order to decide which model was the most efficient and realistic to continue the project with. After the decision was made, we further tested the AEV on the track in order to maximize efficiency and the correct power and stopping point needed to grab hold of the passenger cart which was added in the final stages of the project.

I have also worked on an independent research project within the Unit Operations Lab. This was fulfilled with the goal of redesigning the former Fuel Cell lab within the chemical engineering department. More specifically, I was tasked with creating new data points for the students to collect as well as supplying the tools necessary to finding those data points.

**What skills or technologies do you know that will contribute to your success in this role?**

As a student pursuing mechanical engineering with the purpose of design artificial intelligence run robotic systems. I have experience in multiple technical and design based softwares. I have taken courses in MATLAB, SolidWorks and C++ programming. I will also be taking a design course in the Spring semester that will teach me the ins and outs of Arduino programming (of which I have already been introduced in my engineering intro courses).

I also consider myself a fast learner. Someone who may not have the knowledge of every process within engineering but is constantly working to understand them. I also enjoy data analytics and although I have not taken any courses that specifically surround this subject, I still believe I have a good understanding of the paths and objectives to follow when evaluating large data sets.

**For the Data Science Portion:**

**Overview:**

Summertime in Indy is a magical time. With festivities regularly occurring all over the city, we need more convenient ways for people to access all of this fun.  As such, this summer the TechPointX talent team is looking to launch their very own scooter rideshare service titled Xtern Xpress. To properly deliver on the scooter rideshare sensation,  Xtern’s scooter rideshare service will be released with all of the associated features, and we need your help!

**Data Science**

**Situation**

Have you ever hopped on a scooter and realized the battery is dead? 😣 What an upsetting experience!

In order to prevent that horrible user experience from happening, the data science team is focusing its efforts on coming up with the best scooter charging strategy.

You can find a data set below with scooters’ current geolocation and power level. Power level ranges from 0 - 5 (0 as completely out of battery, 5 as fully charged). It takes 5 hours to charge a scooter’s power from 0 to 5. TechPointX talent team also has a mega charging bus that drives around to pick up scooters and charge them inside. Unfortunately, the bus can only park and start at location 20.19 (xcoordinate), 20.19 (ycoordinate) and only travel 50 miles per hour.

**Your Task**

Review the data set, and draw any conclusions you can find from the data set. Try to identify the most popular scooter location, demonstrate your findings using data visualization tools, calculate operation time cost (Operation Time Cost: How long it takes to fully charge all the scooters), and come up with the most efficient scooter charging strategy.

**Submission Directions**

Prepare your conclusions from the data set, including the components described above. Your research and conclusions should be submitted as a link to a github repository. It is encouraged that your repository hosts a Jupyter (formerly iPython) notebook.

**FAQ**

* What if I cannot download the data file?
  + If switching browsers does not resolve the issue, please reach out to [x@techpoint.org](https://x@techpoint.org/) and we will email you a direct copy of the file at our earliest convenience.
* Is there a required tool for the data analysis?
  + There is no required tool for the analysis, however, some tools may be better suited for the type of file and work needed.
* What if I’m craving more information?
  + This prompt is intentionally very open. We know you will likely run into many questions about the scooters, the charging regulations, and more that are not fully explained here. Feel free to make assumptions that enable you to create solutions, just be sure to identify what assumptions you create

**Supplemental Resources**

* Data file: [Data Set](https://drive.google.com/file/d/1ck6iTBtPx7VKVvm---1O2gTKtQkAmb_Z/view?usp=sharing) (Download as CSV)
* Jupyter Notebook: <https://jupyter.org/>
* Hosting Information: [Jupyter Notebook in Github](https://help.github.com/en/articles/working-with-jupyter-notebook-files-on-github" \t "_blank)
* Python: <https://www.python.org/>
* Pandas: <https://pandas.pydata.org/>