~~Dear~~ Deeplocal Hiring Team,

I hope you all had a great holiday and that your year is starting off well. I am ~~Michael Mong,~~ a Junior Mechanical Engineering major at Carnegie Mellon University writing to apply for the Summer 2019 Engineering Internship position. I am impressed with the projects going on at Deeplocal and would love to contribute to your work. I am confident that my ~~variety~~ of skills in rapid prototyping, machining, and creative thinking would be of use on Deeplocal’s innovative projects and I hope that you will consider me for the position.

I understand that a lot of your work stems from being given abstract challenges and finding creative ways to solve them, usually only given a short amount of time, a scenario I often encountered while competing in FIRST Robotics. During my 3 years in this program, I became very familiar with the rapid prototyping process as each year we had 6 weeks to design, manufacture, and program a robot which could complete the new year’s challenges. I was heavily involved with the prototyping process and ~~even~~ oversaw a small prototyping team for 2 of those years to work on specific subsystems of the robot. During this time I was also responsible for quickly determining the optimal solution from the prototyping experiments and CADing the final design using SolidWorks. I ensured that the subsystem was fully completed on time using a variety of manufacturing methods such as hand mills and plasma cutters. I believe that my ability to work quickly to determine optimal solutions and begin the manufacturing myself will be of great use to Deeplocal on their projects.

Additionally, while I was at DEKA Research and Development, I had the privilege to work at a company where they were able to have the resources to quickly machine their own components but also had a large machine shop where I could submit more complex parts to be machined. ~~Because of this~~ I became much more familiar with using hand mills and lathes as I was often making my own parts for my fixtures as well as manufacturing parts for other projects as their deadlines approached. As some of my test fixtures required more complex geometry and machining processes, I also became familiar with properly dimensioning drawings such that they can be machined out of house.

While I have not had any official advertising experience, during my time working at REV Robotics, I created a number of items meant to promote the brand. One that I am particularly proud of is a miniaturized remote-control Wall-E robot using only their build system which demonstrated its capabilities outside of normal use. I headed this project and completed the design, manufacturing, and programming independently over the course of a week and a half. This project further increased my skills in CAD as the entire model was completed prior to any manufacturing work, due to the fact that the model had such tight tolerances and needed to be planned out perfectly ahead of time.

Deeplocal stands as a key innovator which operates in a distinct market to bring intriguing concepts to life. I hope to be a part of this amazing team and work to generate unique and engaging experiences to seemingly everyday products and brands. If you have any questions, feel free to contact me by phone at (817) 938-0718 or at mmong@andrew.cmu.edu. ~~Thank you for~~ your consideration.

Respectfully,

Michael Mong

As a Deeplocal intern I would apply my skills to rapidly generate prototypes as well as work to develop unique solutions to address the challenge at hand. Additionally, I could generate any models you might desire as well as prepare parts for manufacturing as I am a certified Solidworks Associate with 5 years of CAD experience.

I began developing my design skills in high school where I participated in FIRST Robotics, a high school level international robotics competition. Each year we were given a new challenge and limited time to complete the construction of a robot which could complete the various tasks. While a part of FIRST Robotics, I led many groups of younger students through rapid prototyping sessions of various subsystems from drivetrains to trashcan manipulators. As time was of the essence, I developed the skills to use Solidworks to quickly create a model and build a test assembly to assess its feasibility and compare it to other prototypes in order to move to the manufacturing stage as soon as possible. Upon entering college, I continued to build upon these skills in my classes and used them to preform exceptionally in my design competitions. During my freshman year, I created the fastest mousetrap powered car in the class by lasercutting living hinges into my design to create a 2D suspension system which minimized the weight while allowing a higher max speed when going over the obstacles. Then, in sophomore year, I created a lightweight crane which lifted a 1lb weight the second highest height in the class. This was done by utilizing the high second moment of inertia of a hollow cylinder to allow us to save weight in the structure and therefore use a heavier counterweight on our servo arm as weight was limited. My ability to quickly test various approaches to problems and create meaningful models and prototypes would be of great use to Objex this upcoming summer.

**What do I want to show: used to crazy deadlines and innovating, can manufacture all of my own stuff and spec things to be machined out of house, outside the box thinking.**

I served many different roles during my 3 years in the program, each of which taught me different skills. Before FIRST, I lacked many useful skills; however, during my first year I pushed myself and came in extra hours to learn. I became one of the students responsible for maintaining the robot in the stressful environment of competition, an experience which taught me how to mitigate the chance of failures and how to correct an issue when it occurred. After teaching myself Solidworks over the next summer, I was made a design lead where I guided a small team of students through the prototyping process. We used Solidworks to design a pneumatic claw for our robot and then manufactured the parts to ensure our subassembly was completed in time. During my final year on the team I was elected president, a role which further honed my skills as I not only worked to prototype and design the main section of the robot but also managed the other design groups to ensure that all the subsystems were compatible with each other and proceeding along on schedule.