



March 8, 2022

To Whom it May Concern:

It is with pleasure that I have the opportunity to recommend Drew Williams for your scholarship. I have had the opportunity to get to know Drew and watch him grow and develop over the course of the last four years, first as his engineering teacher and then as his InvenTeam Coach. Drew is a kind, patient, and persistent student who is capable of solving challenging problems when he sets his mind to it.

As a 9th grader, Drew was finding his stride. In class he and his peers collaborated to design an interactive cornhole board. He and his team was successful in programming and wiring an arduino with sensors to control LEDs to blink with different patterns when the bag landed on the board and when the bag went in the hole and they went on to successfully sell their board for profit.

In 10th grade, the big challenge was to design and build a kinetic sculpture, controlled again by arduino, but this time there was a significant amount of physical prototyping involved before getting to the final materials. During Drew's 10th grade year, he really stepped it up! He learned the details of the coding so that he could successfully control his servos and his LEDs. He coded them to create interesting movements and light patterns. He came in during lunch and during extended time as needed in order to stay ahead, and in doing so he moved successfully through each step of the process and was often able to explain some of the details to his peers who he was ahead of. He successfully completed the kinetic sculpture and showcased it as well.

As Drew's 10th grade year closed, students were sent home due to COVID, and Drew and his peers were assigned an invention project. He contributed to the team of students writing a competitive Lemelson-MIT InvenTeam grant application and the team was ultimately selected for one of 13 teams in the nation to earn \$10,000 to design a device to solve a problem of their choice. In light of the police murder of George Floyd and the continuous injustices People of Color face at the hands of police, the team proposed to design a device to monitor police stops and secure the monitoring data safely on the cloud. In this project, Drew proposed to be a member of the AI/Machine Learning team. In this role, he collaborated with four peers with the intended goal of utilizing raspberry pi to implement an object recognition model to determine if the driver of the car was wearing a seatbelt prior to being pulled over and also to identify if the driver was on their phone. This entire task had to be done from home with classes via zoom. Drew and his team had to use online tutorials to learn basic python. He had to learn how to use the raspberry pi hardware, and he needed to be independent enough to research problems as they arose. Over the course of the InvenTeam year, Drew emerged as a reliable leader and expert researcher on his team. He implemented a machine learning model to recognize seatbelts! He persistently researched coding issues to determine what was going wrong, and he ultimately was able to generate a report on raspberry pi that listed whether a seatbelt was in use and automatically upload this report to Amazon Web Services where our team's data was housed. At the end of the InvenTeam year, Drew and his team successfully presented their invention at EurekaFest, MIT's invention showcase, and ultimately at the end of summer Drew and his team received a provisional patent with each of their names on it. Over the course of Drew's junior (InvenTeam) year, he demonstrated persistence, maturity and commitment in the most difficult and unprecedented (COVID, virtual) year. He invented something while collaborating with peers from home. This is an incredible feat!



I highly recommend Drew as a recipient of your scholarship! He is a capable, persistent, and knowledgeable student who will be successful!

Sincerely,

Beth White

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