Progress Report

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DREU Milestone 3

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Project Description

I am assisting Dr. Luc Paquette with his research on persistence in education. Our study involves collecting data on students participating in an introductory computing course within a virtual learning environment hosted on a Minecraft server. In this environment, students will build programs both individually and cooperatively to enable the WHIMC BarrelBot to navigate various obstacle courses. The data collected will be analyzed to identify points of challenge for students, aiming to better understand how they persist or give up when faced with educational challenges.

I am currently at the midpoint of my 10-week DREU program at the University of Illinois at Urbana-Champaign, under the mentorship of Dr. Paquette. Over the past five weeks, I have helped prepare for data collection by familiarizing myself with the data generated from the WHIMC virtual environment. Additionally, I have collaborated with the WHIMC development team to identify and address missing data in the database and flaws in the learning environment.

I have learned to query the mySQL database and analyze the data by writing Python scripts. These scripts will serve as a pipeline for analysis during data collection. In the remaining five weeks, I aim to assist Dr. Paquette in identifying markers in the data relevant to studying persistence. This will involve extracting, organizing, and performing calculations on the data, as well as noting any missing data that may be crucial for the analysis.

The most challenging aspect of the program so far has been the steep learning curve associated with acquiring the knowledge and skills necessary for data analysis on an evolving dataset. However, this challenge has also been the most exciting and rewarding part of my experience. For instance, one of my first Python scripts calculates the amount of change made by a user attempting to solve a puzzle in the learning environment. This allows me to quantitatively assess what struggle and persistence may look like as someone transitions from observing a problem to producing a solution.
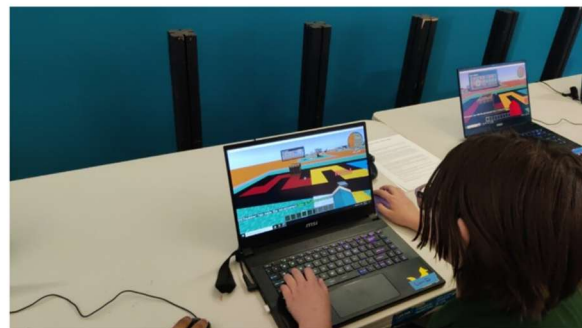
Working Environment

For the most part, I work alone in my dorm room at a small desk with an eastward-facing window. It is quiet, comfortable, and has very few distractions. On Mondays, I walk to the UIUC Education Building to meet with my mentor, Luc Paquette, to discuss what I have accomplished and how to move forward. On Wednesdays, I meet with Juan Pinto, a graduate student who has worked with Dr. Paquette for several years. Juan is familiar with this project and has conducted and completed research in this domain in the past. I also attend virtual meetings held by the WHIMC BarrelBot Development team and the INVITE Institute, both of which are associated with this research project. Outside of research specific to persistence, I attend the weekly Lunch and Learn sessions hosted by UIUC staff and I participate in a UIUC computer science research and reading group twice a week.

Housing and Roommate Situation

I live on campus at UIUC in a suite at Presby Hall with one roommate, Katelyn. She is an engineering undergraduate from Nevada participating in a 10-week program funded by NASA. We each have our own rooms on opposite sides of the suite, and she often works alone in her room as well. We cohabitate well and I enjoy her company when we spend time together.

Our greatest glory is not in never failing, but in rising up every time we fail.

\- **Ralph Waldo Emerson**