



Real Intelligence, Artificial Actions

This program is primarily intended for students with an interest in STEM topics, particularly math, computer science, and robotics, but who currently lack a STEM background. We will introduce key concepts through the different lenses of math, programming, and robotics to develop a firm foundation for quantitative and analytical reasoning about the worlds we live in, both physical and virtual. The overarching focus is that your real intelligence is the driving force behind the actions that artificial agents engage in, and how you can use that knowledge to control those actions rather than being controlled by them.

The program will have four interconnected elements:

- We will explore a combination of essential algebra and statistics to understand how computers and robotics view the world (algebra) and how the media abuses math to mislead the public (statistics).
- We will use Python to understand how computer programs are made and how students can take more control of what their computers do.
- We will use a combination of CircuitPython and microcontrollers to build physical devices controlled by student-created code to show that it is the robots who should fear us, not the other way around.
- We will discuss various contemporary topics related to the other threads, particularly the misleading use of statistics and the ethical implications of technological development.

Both the Python and Robotics threads will be a combination of short talks and hands-on labs. Math activities include lectures with weekly homework assignments and short quizzes to check progressive understanding. Seminar will include weekly readings with a focus on active participation in group conversation and reflective writing.

