UBC Emerging Media Lab MathWorld

PURPOSE

Help students develop a better intuition around multivariable function by aiding their visualization of these functions in augmented reality.

BACKGROUND

For most students studying a technical field at a post-secondary level they will be introduced more advanced mathematics. Transitioning from the high school level single-variable calculus that lends itself so well to plotting in dimensions, many students struggle with multivariable calculus as they don't yet have an intuition around how different graphs may look.

It is my belief that through the use of an augmented reality representation of the multivariable plots, students will have an easier time developing an intuition around multivariable calculus which in turn will help foster a deeper understanding of a subject matter.

THE PROCESS

The app works by taking text input to describe the function to be plotted. This text is interpreted by the app and then converted into a list of coordinates and then those coordinates are placed in the ar environment.

DEVELOPING INTUITION

It's important to realize that this app most likely won't be used to help solve problems or even analyze multivariable at a quantitative level. That's because graphs aren't really a good way to convey specific information about a function. Graphs are much more suited for conveying general information about a specific function.

The hopes of MathWorld is to help students draw general associations with function types and their shapes.

LEVELS OF UNDERSTANDING



Vanderbilt University Center for Teaching

Bloom's Taxonomy

Bloom's Taxonomy is a useful tool to model the learning process and characterise different stages of understanding a concept.

The goal of the app is target the remembering and understanding level. These two level are often referred to as intuition.







Acknowledgement

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