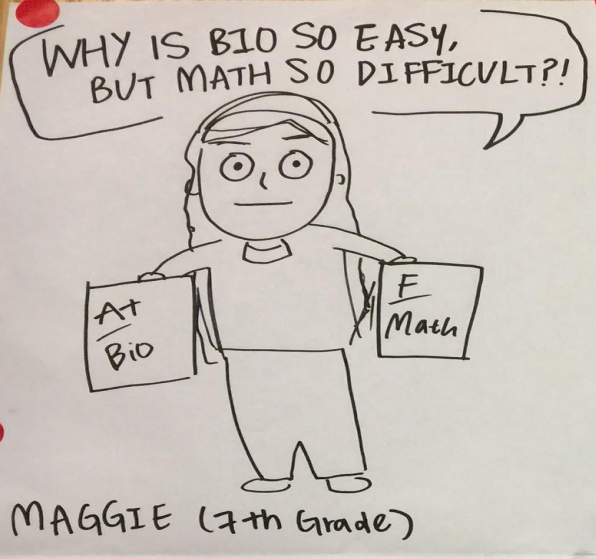
How can we foster academic interest for high school students online?

Real life, real learning!

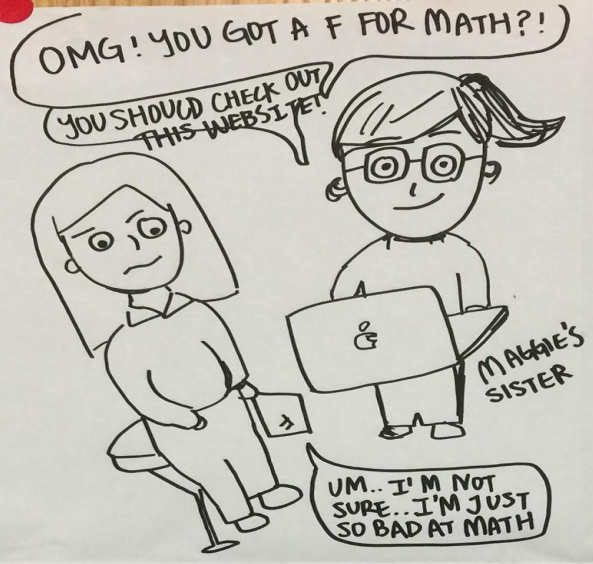
Boya Ren, Hedy Wang, Alison Chen, Gendarme Docena, Samuel Huang

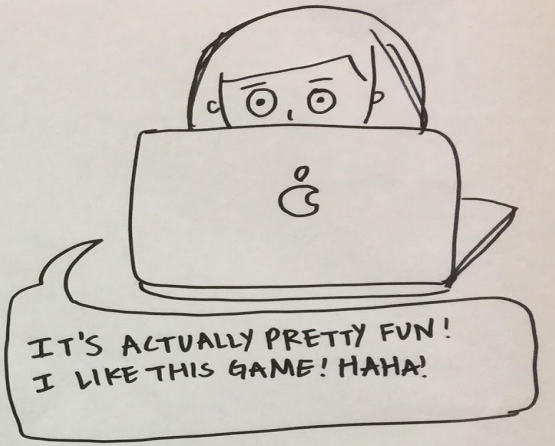
Human-Centered Process

a. ***Stakeholders***
    i. Unengaged High School Students
b. ***Obtaining Feedback***
    i. "How is the different from Google?"
    ii. "Does this empathize with your stakeholders?"
    iii. "Understand the difference between need and problems?"
    iv. "What is your specific design focus?"
c. ***Leveraging Data and Research***
    i. Modifying the target audience from middle schoolers to high schoolers
    ii. canceling game feature, community feature, and plan feature.

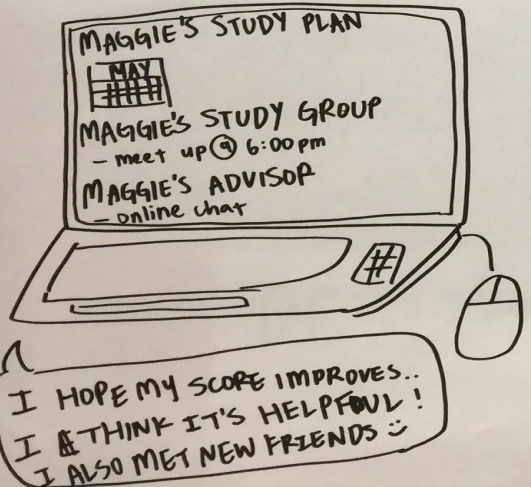


MAGGIE (7th Grade)





MAGGIE USES OUR WEB FOR 2 HOURS EVERY NIGHT ~



MAGGIE'S MATH IMPROVED

Feasibility

How likely is this to be implemented? Can it actually work in the real world?

- An add-on to the current online class website
- On the sidebar, hover the user's cursor to the pop up button
- Can reach out to a variety of audience
- ***Economic:***
  - Does not take extra money.
  - Involved in the existing online learning app/website.
- ***Cultural:*** It resembles the "recommended videos" pattern on Youtube and so users could get started quickly and it's easy for them to get used to it.

Impact

How does it affect people?

- Keeps the users engaged in their studies!
- Not just reading a bunch of facts

Pros

- Help users explore interested majors
- Build connections
  - between knowledge and real world
- Provides curiosity in future careers

Cons

- Spends too much time browsing these related topics

Design trade-offs

- Additional resources vs congestion, too much info vs. not enough info, additional resources vs. staying on task.

Microsoft Word - For Dummies
pages.ucsd.edu/~mboyle/COGS1/readings/Cottrell-COGS1-Introduction-to-Neural-Networks.pdf

(Parts 1 & 2) For Dummies— The Introduction to Neural Networks we

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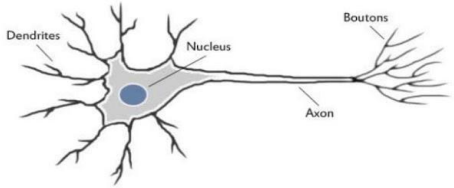
Jul 26, 2016

This is going to be a 2 article series. This article gives an introduction to perceptrons (single layered neural networks)

***Update**: Part2 of the series is now available for reading here!*



A neuron in our brain

Our brain uses the extremely large interconnected network of neurons for information processing and to model the world around us. Simply put, a neuron collects inputs from other neurons using dendrites. The neuron sums all the inputs and if the resulting value is greater than a threshold, it fires. The fired signal is then sent to other connected neurons through the axon.

The figure depicts a neuron c
neurons and thus receives *n* i
configuration is called a **Perce**

The inputs (x1, x2, …. xn) and
are real numbers and can be

The perceptron consists of we
processor and an activation fu

Note: *It also contains a threshold processor (known as bias) but we will talk about that later!*

All the inputs are individually weighted, added together and passed into the activation function. There are many different types of activation function but one of the simplest would be step function. A step function will typically output a 1 if the input is higher than a certain threshold, otherwise it's output will be 0.

Note: *There are other activation functions too such as sigmoid, etc which are used in practice.*

An example would be,

Input 1 (x1) = 0.6
Input 2 (x2) = 1.0

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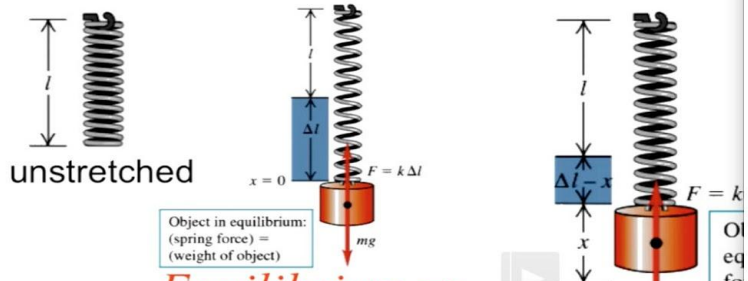
Examples Of SHM: Vertical



$$Equilibrium \Rightarrow$$

$$(k)(\Delta l) = mg$$

When extended from equilibrium

$$\Rightarrow F_{net} = k(\Delta l - x) + (-mg) = -kx$$

Body in vertical SHM with $\omega = \sqrt{\frac{k}{m}}$

Play speed: - + Normal (1x)

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J.M. Roger

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Abstract

It is a long-standing convention of *NIR news* that we publish a modified version of the Tomas Hirschfeld Award lecture soon after the award has taken place. In 2016, the Hirschfeld Award was made to Jean-Michel Roger (IRSTEA, France) someone who is well-known within the near infrared community as a chemometrician of note and who has made very many contributions to the advancement in our understanding of data analysis and both quantitative and qualitative prediction techniques. It is our pleasure to reproduce below a summary of Jean-Michel's lecture delivered in Chambersburg at the IDRC event in August of this year.

Vol 27, Issue 7, 2016

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