

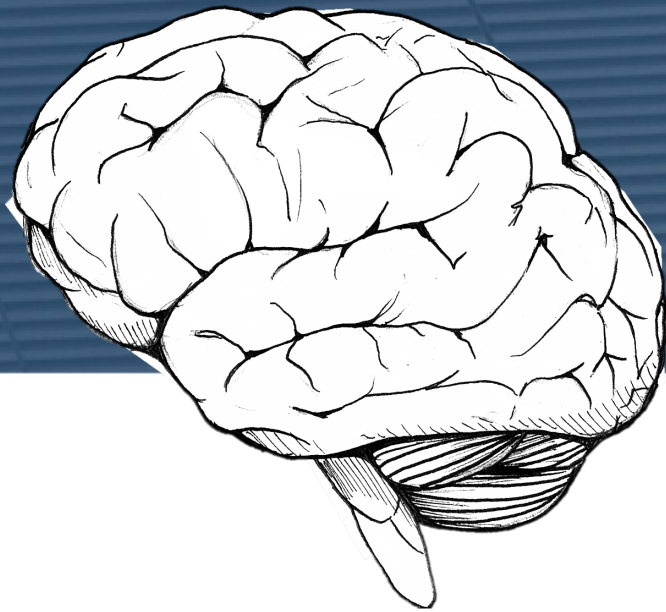
tinyML[®] for Good

Tiny technology for the world's biggest challenges

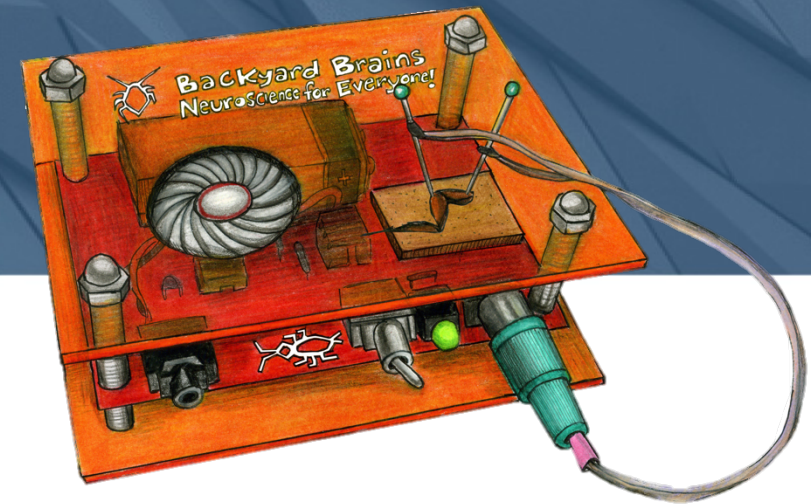
tinyML4STEM: using tinyML for Neuroscience in K12

Greg Gage

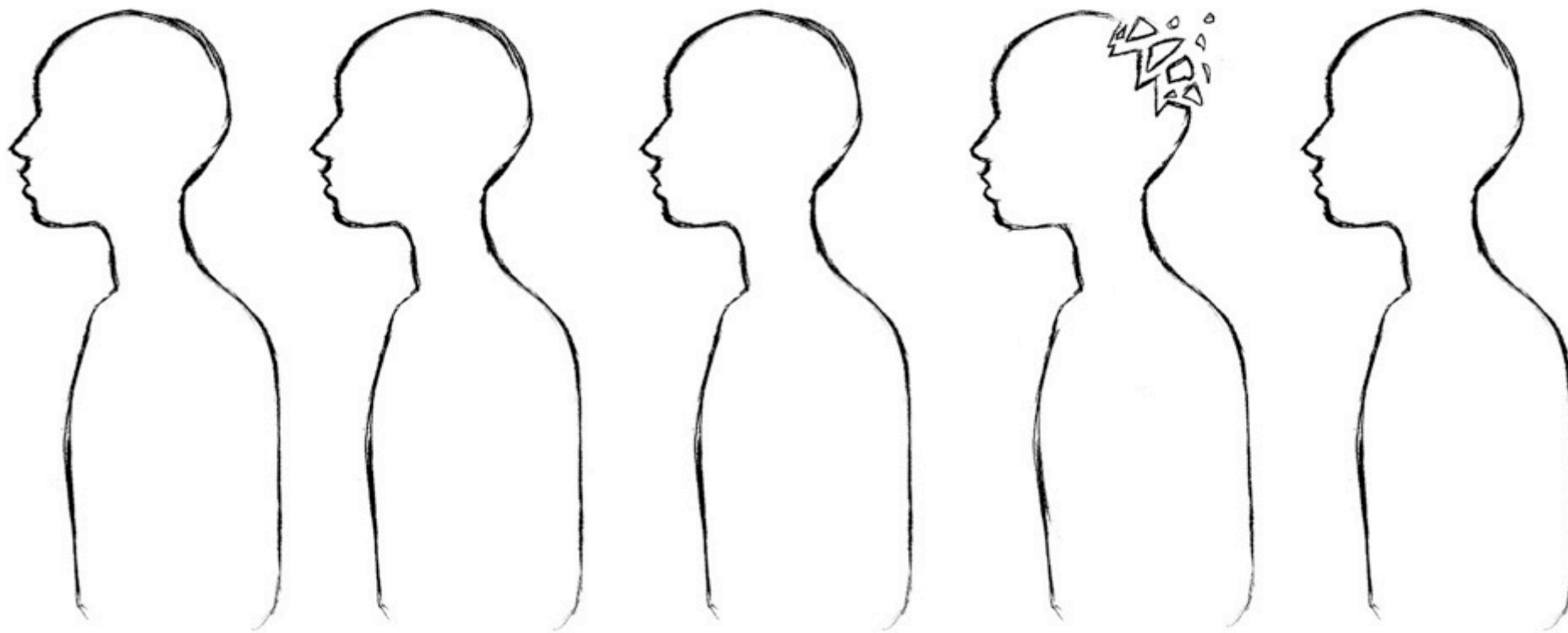
CEO, Backyard Brains



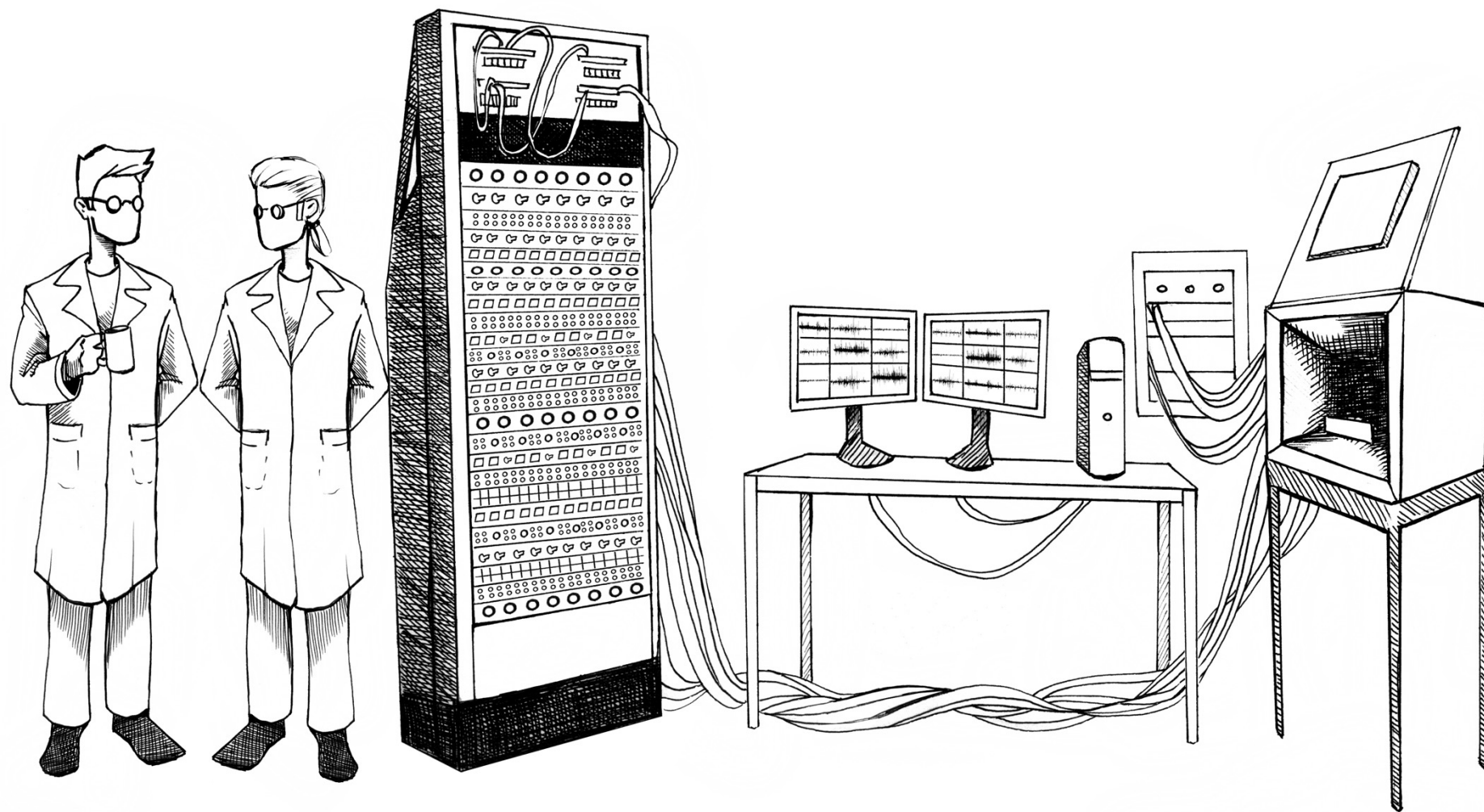
www.tinyML.org



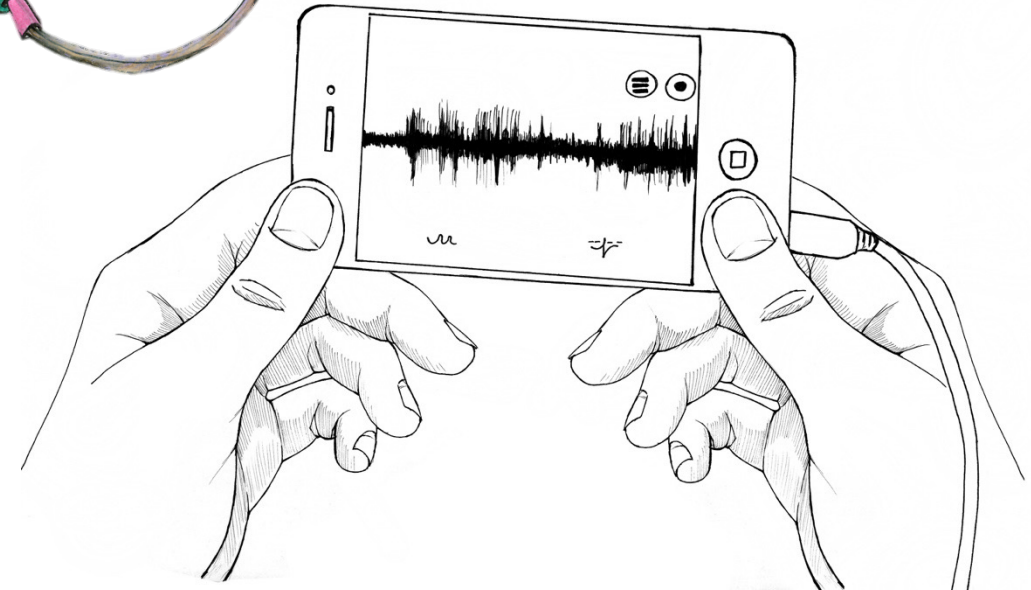
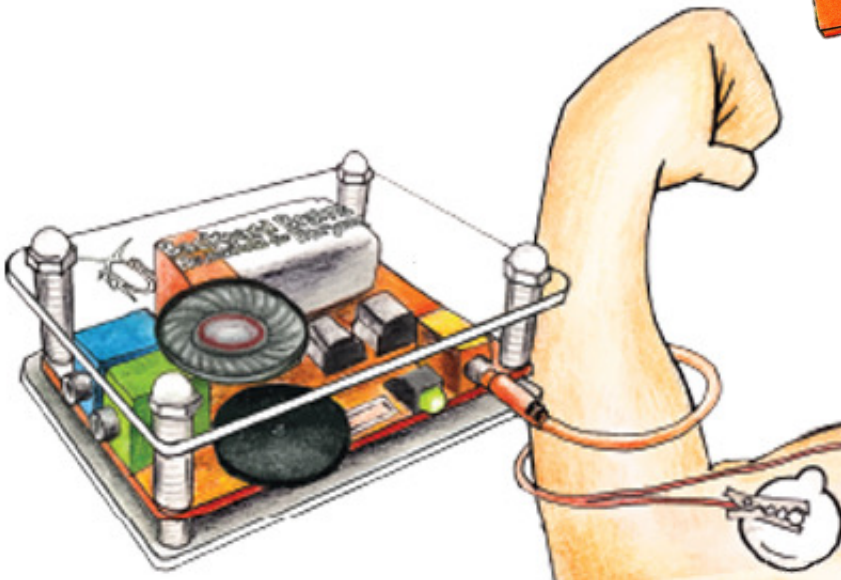
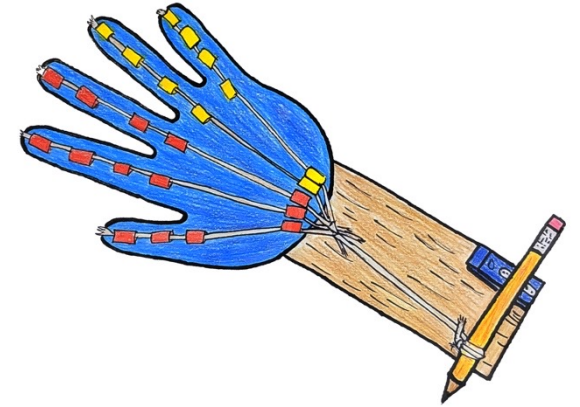
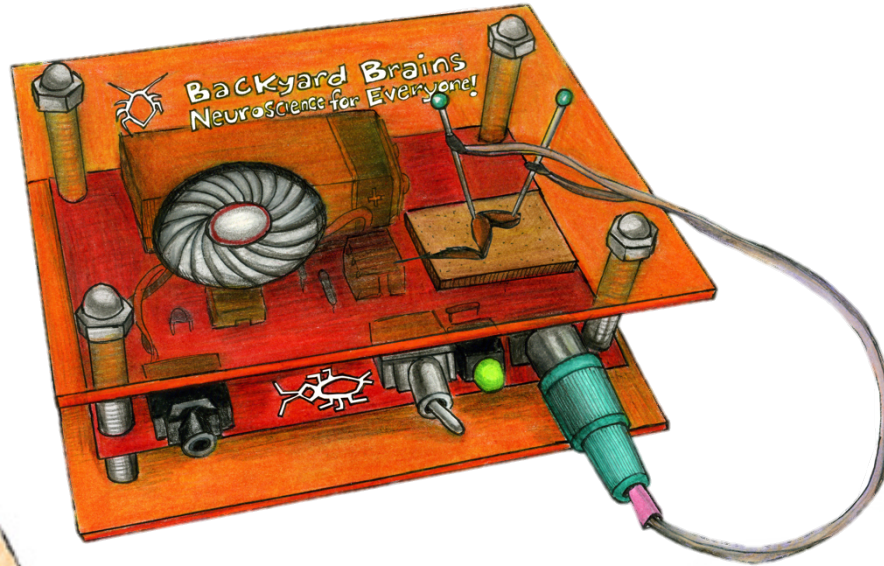
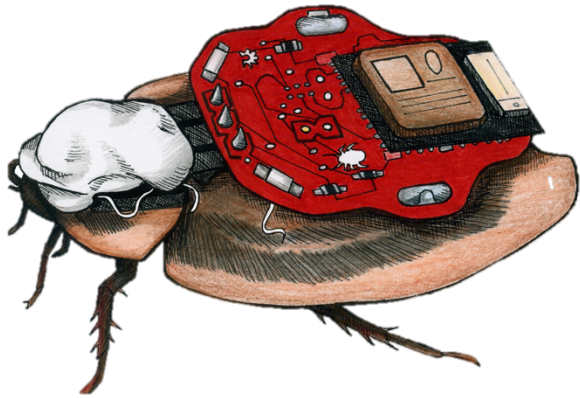
Problem: 1 in 5 people have a neurological disorder with no cures.



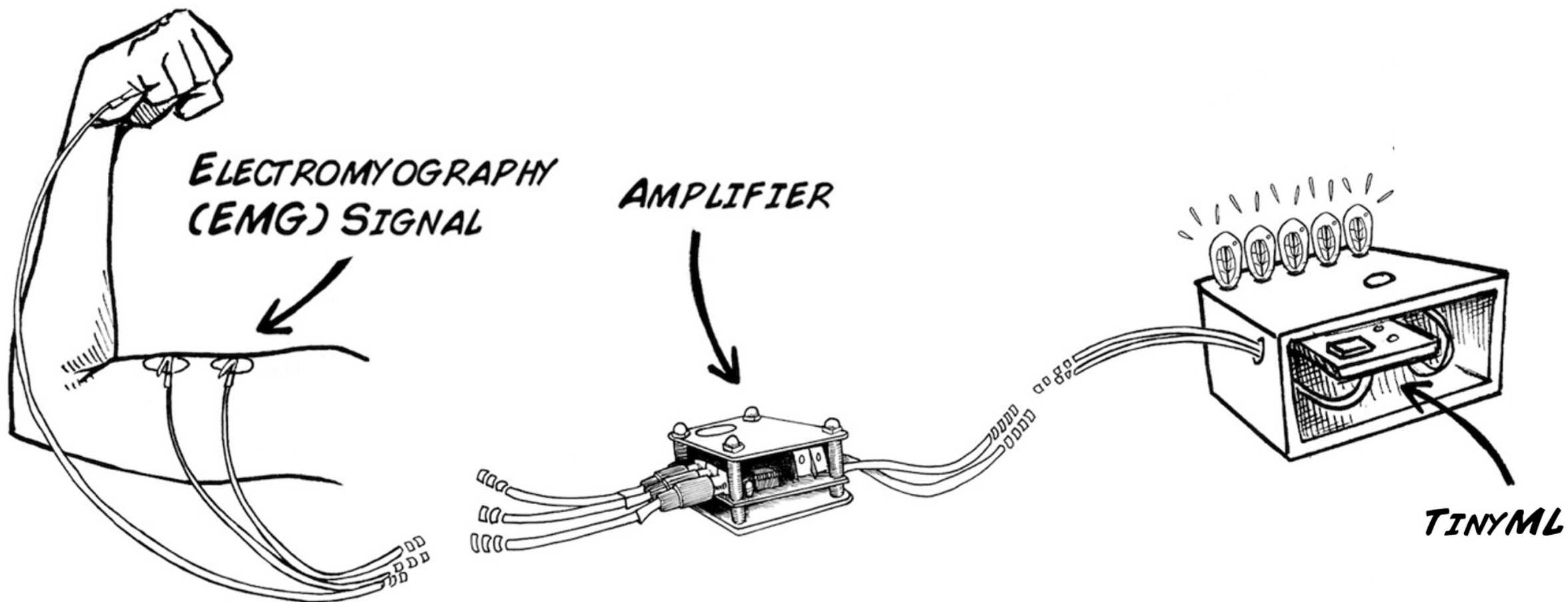
Problem: Neuroscience is deemed “hard” and not taught in schools



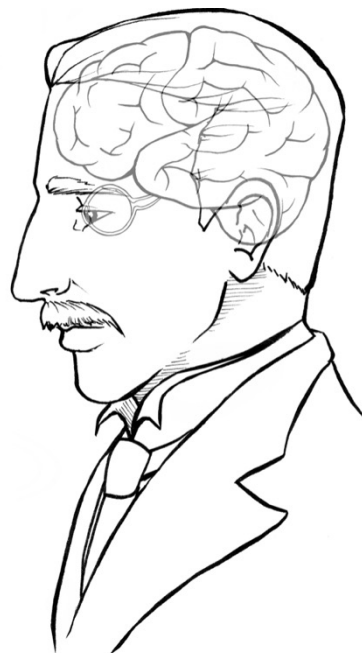
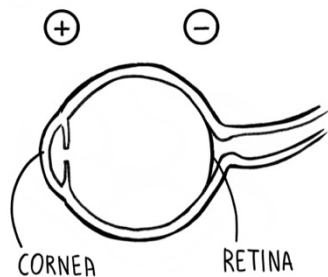
Solution: Develop DIY kits to enable neuroscience research in K12



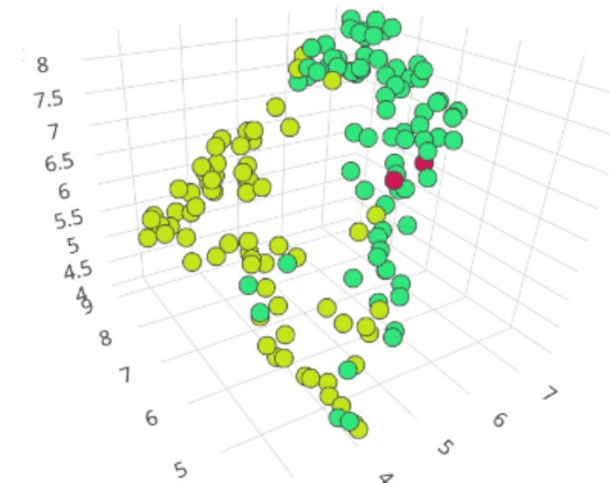
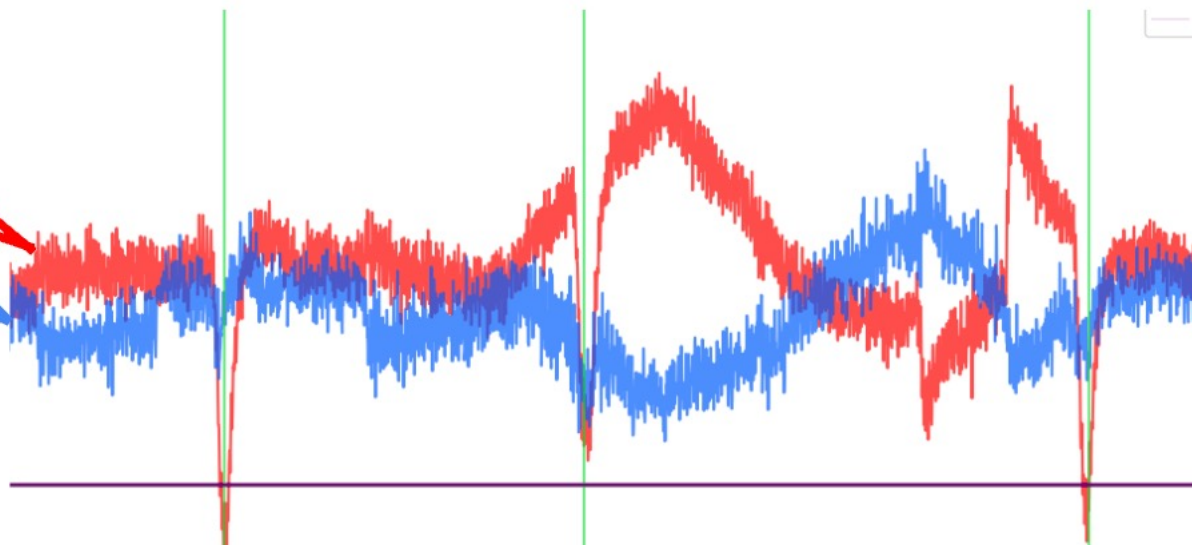
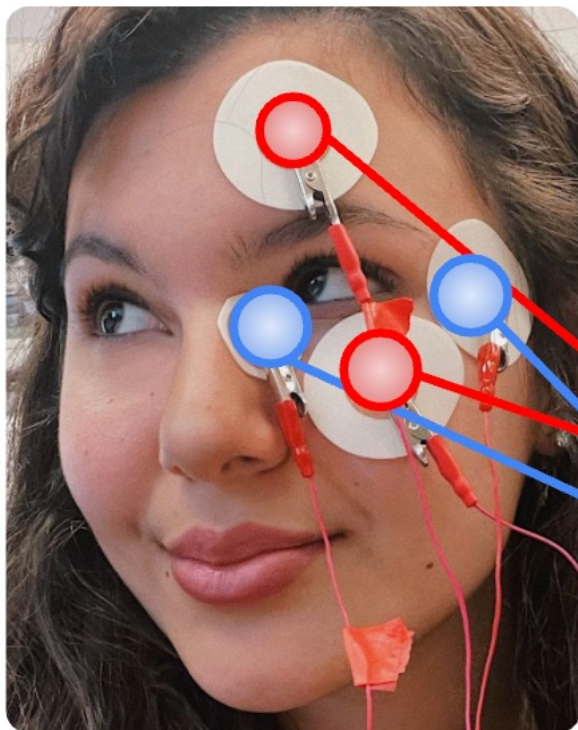
Neuroscience signals are great for TinyML



Example: FOMO Glasses



Ariyana Miri



BLINKS	NON-BLINKS
92.3%	7.7%
0%	100%
0.96	0.97

Trained TinyML
to detect eye
blinks

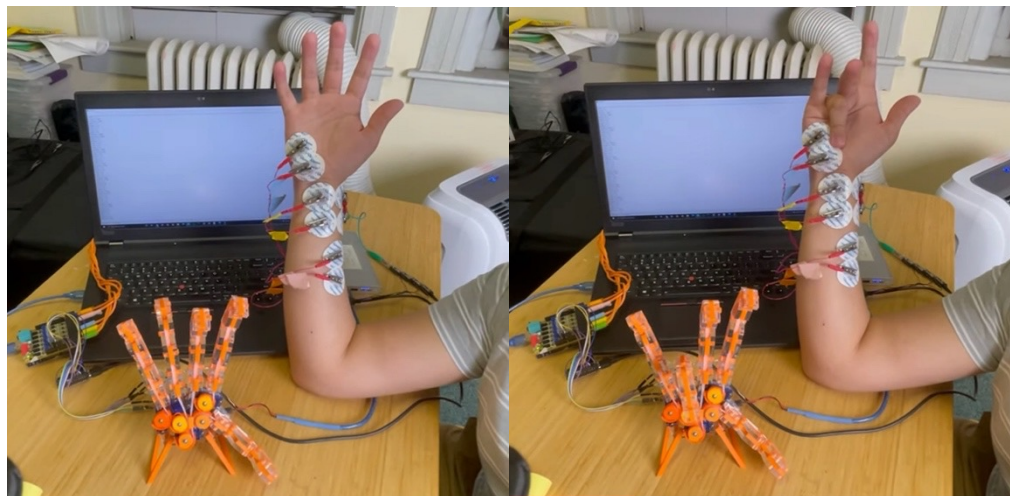
Example: FOMO Glasses



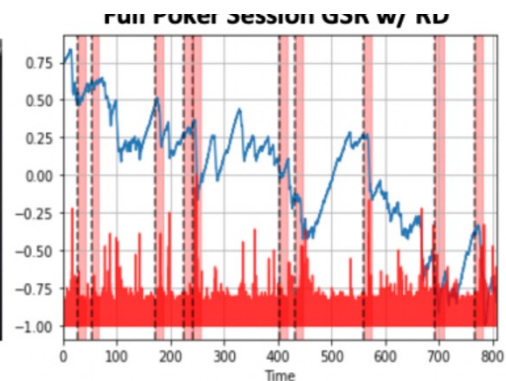


Many human signals can be used!

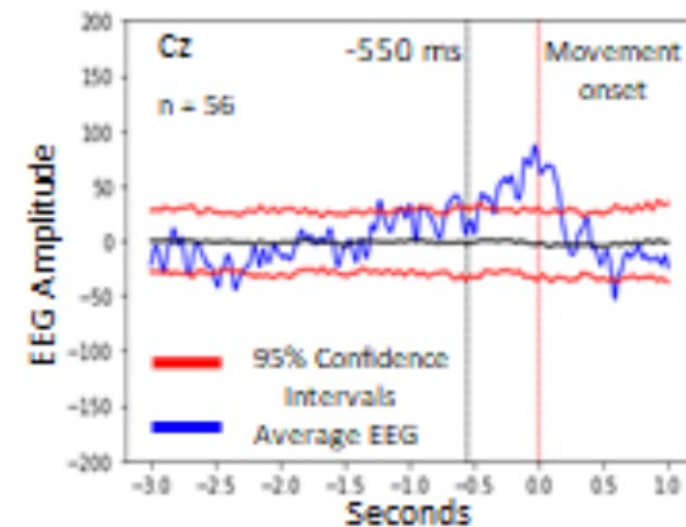
EMG – Artificial Hand



Skin Galvanometer / EKG – Poker-Bluff Detector



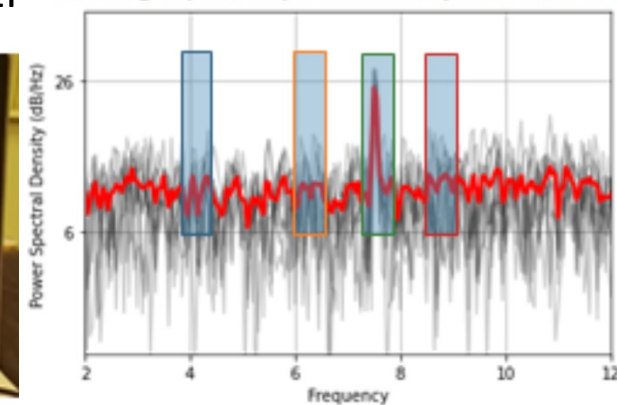
Motor Ctx EEG – Free Will



Visual EEG - SSVEP



Averaged power spectral density for 7.5 Hz card





How you can help!

TinyML4STEM – Looking for other STEM sciences to partner with. Physics, Chemistry, Plant Biology, etc.

TinyML Neuroscience Fellowship
– We will be running another summer program in May 2022.

More at: backyardbrains.com

