

NeuroMaker BCI

The World's First Brain-Computer Interface STEM Kit.

Introduce your students to the cutting-edge world of BCI technology with our powerful, accessible STEM learning platform. NeuroMaker BCI combines a precise EEG headband with dozens of activities for neuroscience, machine learning, signal processing, as well as the ethics and impact of the technology in society.

Developed in partnership with NeuroTechX, a global non-profit org dedicated to the advancement of neurotech education, the BCI curriculum delivers hours of engaging instructional content that aligns with selected CSTA, NGSS, CC, ISTE and other national standards.



Learn with Powerful Consumer Technology



NeuroMaker BCI is based on the same technology used in [FocusCalm](#), a brain training wearable product for consumers that helps people learn how to manage stress and increase their sense of wellbeing. It's a great way to introduce students to a wide array of technologies that are truly helping people improve their lives.

Student Learning Opportunities



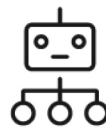
Neuroscience

Learn the structure and biology of the brain that can be measured with EEG technology.



Signal Processing

Sort and analyze large data sets using python-based data science techniques.



Machine Learning

Apply machine learning algorithms to categorize brainwave data.



Ethics and Impact

Evaluate the social and ethical impacts that advanced technology Will have in the future.



Learning Labs, Inc.

1-800-334-4943

www.LLI.com

Everything You Need to Create a Unique STEM Solution.

Curriculum & Academic Materials

Kick Start BCI Experiences—Jump into BCI technology right out of the box! Use a pre-built BCI application to detect changes in your Alpha waves and race your own virtual go kart with the power of your brain.

Neuroscience and Neurotechnology—Learn foundational neuroscience concepts such as the structure of the brain and source of measurable brain signals.

Signal Processing and Python Data Science—Learn basic python programming and tools for data visualization and apply the toolkits to separate raw brainwave data into different wave bands and clean unwanted signals for processing.

Machine Learning and BCI—Build an LDA classifier on sample data sets and train your program to recognize different patterns in signal data. Record your own EEG data and use your own programs to remove noise from your signals and hone in relevant information.

BCI Impact-Open Source Research and Neuroethics—Review best practices in open source and data privacy principles crucial to the development of neurotechnology. Learn the basic tenets of ethical use of neurotechnology and ensure that the application of your creations benefit society.

Build a Sleep Detector and Attention Detecting Device—Use the skills and knowledge above to build your own attention tracking and alpha detecting program! See if you can analyze your own mental state and that of your partner. Develop your first applications to gain confidence in your skills.

Create a BCI Controlled Game—Apply your skills to the development of a brain controlled game! Use existing templates to add in different brain controlled elements programmed to react to inputs you detect from your algorithms.

Choose your Own BCI Challenge—Integrate all of your combined skills and experience to take on a real world application of BCI technology. Choose challenges ranging from the ethical evaluation of new BCI technology to refining existing BCI code to better detect selected brain states.

Webinars and Learning Resources

Discover dozens of sample lesson demos, informative webinars and interviews with education and neuroscience experts on the [NeuroMaker Resources](#) page.

NeuroMaker Creative Challenge

Challenging students to research ways that technology can improve life for amputees and to then create their own prototypes to solve them with the STEM Kit and any other materials in the classroom. Participants can send us a video and written description of their solution virtually and we will be giving out over \$10,000 in prizes to those that are selected by our MIT and Harvard engineers! Participation is free to any group of students with our NeuroMaker Hand or NeuroMaker BCI.

Support & Professional Development

The NeuroMaker team is there to support you every step of the way. We offer comprehensive professional development courses and lots of tips and tricks to get the most out of the kit and curriculum.

