

BYOI - Bring Your Own Idea

OVERVIEW & OBJECTIVE

This track is designed for hacking the brain the way **completely customized by yourself**, whether you hold an idea for a neuro-tech device that will help patients, have a novel view of leveraging big data or simply crave the excitement of brainstorming. You will be able to use **any available neurotech, VR devices** and other provided components to delve into your chosen project topic, enabling the creation of a unique and innovative product.

DELIVERABLES

On devpost.com you will submit:

1. Narrated video
2. Screenshots
3. Documentation and system description

The devpost link will be provided soon - keep an eye out for announcements on Slack!

CRITERIA

Our judges will score your submission based on:

- The **clarity and ambition of the project's vision** and how well you articulate your goals and propose innovative solutions to your idea are important.
- The **novelty and creativity of the project concepts and implementations**, to the extent that you challenge conventional thinking and offer a fresh perspective, including neuro-engineering/neuroscience, wearable sensing, VR design, etc., as well as the originality of the idea.
- The **technical proficiency and sophistication** of the project's implementation.
- Participants' awareness of **potential ethical implications** and their efforts to address and mitigate these concerns.
- The **effectiveness of communication**, the organization of content, the **precise delivery of the objective**, as well as the quality of necessary illustrations and storytelling techniques used.

RECOMMENDED SKILLS

- Programming skills (Python, C++, C#, etc.);
- Data analysis and machine learning
- Neuroscience or psychology fundamentals
- User interface (UI) /user experience (UX) design
- Teamwork and communication

HARDWARE & SOFTWARE

VR



Software: Unity

Neurotech

Unicorn Hybrid Black

Unicorn Headbands

Cyton Biosensing board & EMG/ECG snaps

PhysioLabXR

(Always remember that you are encouraged to use any other software of your own preference!)

Software: PhysioLabXR

RESOURCES

Neurotech

- [OpenBCI EMG/ECG setting-up documentation](#)
- [EEG paper collection](#)
- [ML/DL paper collection](#)

Unity

Here is a great summary about developing with Unity from Professor Steven Feiner's course on 3D user interfaces in AR and VR:

<https://www.cs.columbia.edu/~feiner/courses/csw4172/DevelopingWithUnity-24s.pdf>

- [Unity scripting reference](#) and [Unity scripting tutorial videos](#)
- Learn the [Unity Interface](#) and [Creating Scenes](#)
- Understand Unity [Assets](#) ([Primitive objects](#), [Importing Assets](#), [Notes on supported formats](#)) as well as [Transformations in Unity](#)

Tutorials and 3D math

- Unity has a short video on Vector math [here](#), [here](#) is a textual introduction
- A video by Unity: [A Little Math for Your Big Ideas](#)

3D Model Resources

- [Unity Asset Store](#)
- [TurboSquid](#) & [CGTrader](#) (Lots of great models, many free)

MENTORSHIP & SUPPORT



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