

### When:

Camp runs for one week starting from July 7 –August 11; 9 am -3 pm; Monday –Friday.

### Who:

Incoming 9<sup>th</sup>-12<sup>th</sup> graders

### Where:

**Monday to Thursday:** Hive Bio @ Talaris Conference Center at 4000 NE 41st St, Seattle, WA 98105  
**Friday:** CSNE @ 1414 NE 42nd St.; Suite 204; Seattle, WA 98105

### What:

Here students will have an opportunity to use Hive Bio facilities, a local Do-It-Yourself community biology lab. Students will manipulate tools and technology, to learn science and solve scientific questions in neuroscience. Experiences include sheep brain dissection and building your own microscope. Hive Bio creates an immersion in what it's like to be a professional scientist, by inspiring young scientists with a thrill of discovery.

As part of this track of Camp BIOmed, students will tour Center for Sensorimotor Neural Engineering(CSNE). CSNE improves lives by connecting brains with technology. Researchers at their Research Center are designing closed-loop neural-interactive systems that help restore function and mobility to people with neurological disorders.

One of the most exciting experiences for the campers will be playing with the device developed by CSNE students called **WrestleBrainia3000**. It harnesses the activation energy in the muscles to power robots to compete. It is an interactive two-player robotic arm wrestling device controlled through EMG electrodes where neuromuscular signal strength beats physical strength. Participants get direct visual feedback about their muscle firing patterns & learn basic concepts about the nervous system & neural engineering.



How fun it is to play Wrestlebrania3000  
EMG arm-wrestling game

Photo Courtesy: CSNE



Students at the 2014 Brain Awareness Week event  
trying out gesture recognition camera game

### Other experiences include\*:

Donning an **Emotiv EPOC** head set which uses 14 sensors and 2 references to detect electrical signals produced by the brain to control a computer icon using only their thoughts;

Wearing a **NeuroSky MindWave headset** with biosensors that measures brain and motor signals;

Using **CREATIVE gesture recognition camera** that allows users to play a video game by manipulating their hand in front of the camera and complementary software programs.

\*depending on the time availability