

CWSF 2019 - Fredericton, New Brunswick



Jeffrey Klinck

Using BCI and AI to Detect Emotions for Mental Health Applications

Challenge: Health

Category: Junior

Region: Bay Area

City: Oakville, ON

School: W. H. Morden Public School

Abstract: A system was developed using a BCI (Brain Computer Interface) and Artificial Intelligence to detect the user's emotional state. The system records the user's brain waves through use of the BCI. The brain wave data is then analyzed by a neural network which determines whether the user is happy, sad, stressed or neutral. The system has applications in the field of mental health treatment.

Biography

Through a youth program I am involved in called The Knowledge Society, I was exposed to Artificial Intelligence and Brain Computer Interface technology. I chose to combine these technologies for Science Fair this year. I came up with the idea of emotion detection using these technologies by looking at big problems facing the world and how to solve them. The growing number of people struggling with mental health issues struck me as a problem that could be addressed with the help of this type of smart system. I was happy with the results achieved by the system. Currently, the system requires some manual formatting of the brain wave data. For next steps, I want to automate the data formatting process more thoroughly. This would provide more "real time" results. I would advise other students thinking about doing a project to try to combine their natural interests with trying to solve a problem facing humanity.

Awards

Value

Excellence Award - Junior - Silver Medal Sponsor: Youth Science Canada	
Western University Scholarship Silver Medallist - \$2000 Entrance Scholarship Sponsor: Western University	\$2 000
Total	\$2 000