

# H.A.N.D.

## HIGH-TECH AND NEUROLOGICAL-DISORDERS FALL 2020 QUARTER RECAP



***Educating, Empowering, Promoting, Innovating***

This Fall quarter, our team:

- Heard from brilliant **speakers** Dr. Yang & Dr. Bronstein
- Analyzed and discussed **research** on Neurological disorders
- Prepared for **podcasts** with leaders in science
- Created educational **Instagram** stories, blogs, and infographics
- Developed **curriculum** to increase scientific literacy and promote science exploration to young students
- Examined the **iStopShaking** patent and Parkinson's research in preparation for prototype development



# Board of Advisors

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Dr. Castillo



Dr. Chen



Lee Felsenstein



Dr. Bronstein



# Executive Team

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*Samya Tawakley*  
Internal VP



*Ashley Kim*  
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*Nitin Subramanian*  
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*Sripad Sureshbabu*

Innovation Team Director  
(Engineering)



*Jane Burgau*

Innovation Team Director  
(Research)



# Education

## SEMINAR & RESEARCH

*Hosting journal club discussions to prepare for guest speakers.*

Chose research papers pertaining to each week's topic, prepared questions for discussion and guest speakers, and formulated an efficient structure for journal club meetings.



## SOCIAL MEDIA & NEWSLETTERS

*Divide and Conquer! Everyone split up responsibilities to ensure everything was completed.*

Created infographics concerning neurological disorders individuals are confronted with daily. Produced informative Instagram stories with either supplemental information on the topic of the week or fun quizzes to test your knowledge.

## PODCASTS

*Focused on supporting UCLA artists.*

Had multiple mini segments starring different H.A.N.D members conversing about neurological disorders and initiatives. Included first-hand accounts of individuals suffering from these disorders.





# Outreach

## AWARENESS CAMPAIGN TEAM

*Spreading awareness through aesthetically pleasing infographics.*

So far, the Awareness Campaign Team has covered the National Epilepsy Awareness month (NEAM) and educated peers on epilepsy symptoms and seizure first aid. This is just one of their many campaigns to come!

### Gut-Brain Link

By Giorgio Conta and Justin Quan  
December 6th, 2020

If you've ever felt butterflies in your stomach when you feel nervous, you may not know it, but those signals are coming from what some refer to as your second brain. There exists a dense network of neurons in your gut that are hidden within the walls of your digestive tract, and these neurons have a strong influence on your mood, emotions, and how you think and process your thoughts. This relatively recent discovery gives a whole new meaning to "going with your gut". Although this network of neurons in the gut may be colloquially referred to as the second brain, scientists refer to it as the enteric nervous system (ENS), and as the years go by scientists are discovering more and more about the ENS. Based on what we know now, the ENS is composed of two thin layers lining the gastrointestinal tract, which runs from your esophagus to rectum, and comprises hundreds of millions of nerve cells. Although the brain has billions of nerve cells, scientists have determined that the ENS has a significant effect on yourself, especially concerning your emotions and mood. For this and many other reasons, scientists are finding ways in which the ENS, or at least the environment in which the ENS

### Spinal Cord Stimulation

By Max Orr, Alex Wu, and Daniel Hong  
December 6th, 2020

### Spinal Cord Stimulation Overview

What is Spinal Cord Stimulation (SCS)? SCS is a means of alleviating chronic pain in patients by stimulating spinal cord nerve fibers. These electrical impulses help inhibit pain signals that are sent to the brain. This form of treatment, previously questioned by many pain specialists about its safety and efficacy, has recently begun to make a comeback in being an effective alternative treatment after exhausting other noninvasive forms of treatment. The patient will generally have a surgically implanted device consisting of a battery pack and electrodes that delivers electrical impulses to the spinal nerves blocking pain signals.

## HIGH SCHOOL PROGRAM TEAM

*Encouraging students to explore applications of technology and science.*

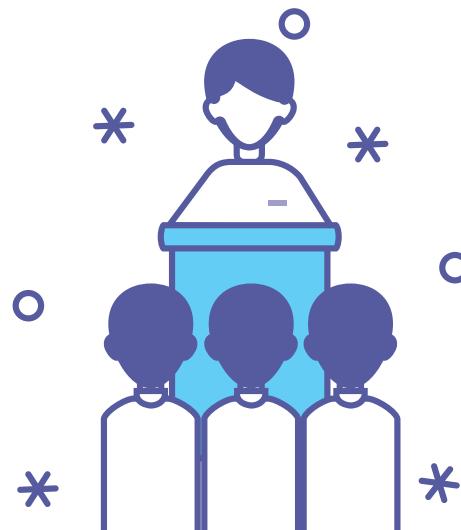
The High School Program Team has been developing a curriculum for elementary to high school students to increase literacy about science and neurotechnology. Lessons plans involve adapting to remote learning and incorporating engaging virtual activities.



## EVENTS TEAM

*Curating weekly blog posts and researching potential guest speakers.*

Recent blog posts covered the Gut-Brain Link and Spinal Cord Stimulation, providing detailed overview on the subjects for students interested in learning more. [Click here to read recent blogs!](#)





# Public Relations

## MEETING RECAPS

*Creation of weekly recap Instagram posts*

The meeting recap subcommittee utilized Canva to design weekly meeting recap posts (posted on our Instagram). They also summarized the main points made by Neurological disorder specialists.



## OUTREACH & EDUCATION

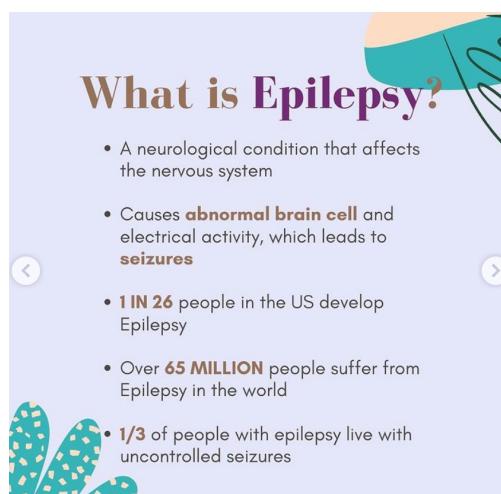
*Finalizing instagram post designs.*

The outreach and education subcommittee worked closely with the outreach and education teams to review and finalize their Instagram posts. This quarter, the major projects have been "Epilepsy Awareness" and "6 Steps for Seizure First Aid".

## SPOTLIGHTS

*Creation of member spotlights.*

The spotlights subcommittee created templates, questions, and information to include in member spotlight posts. They also interviewed and posted about club directors.



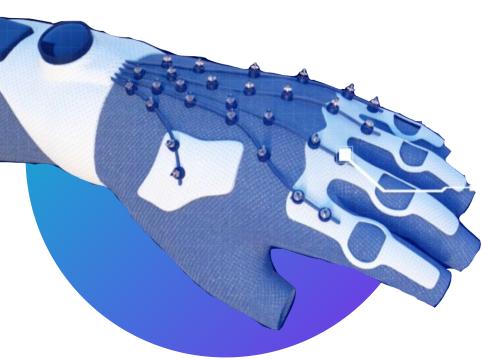


# Innovation Team

## RESEARCH

Future directions and development.

We read and discussed five scientific articles related to Parkinson's Disease diagnosis and treatment. Some articles were very challenging and dense, but members persevered and developed valuable journal-reading skills!



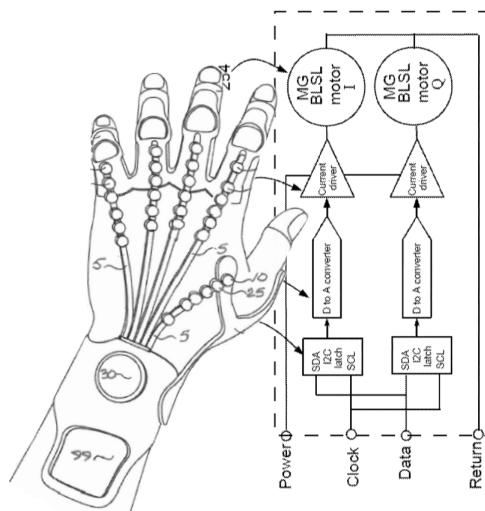
## ABSTRACT

Similarities in physiological and psychological Essential Tremor make accurate diagnosis of these a smartphone-based application that uses discrete machines to discriminate between Parkinson's 96% of accuracy. We have demonstrated that efficiently discriminate between these two disorders uses the influence of attention and distraction there are significant differences in those di

## ENGINEERING

*The science behind the patent.*

We analyzed the iStopShaking patent, synthesizing findings from scientific articles with the design and created documents with suggestions and innovative features for the device.



## 2021 PROSPECTS

*Winter quarter plans.*

We plan on working on project proposals, workshops for technical information, multiple advisor meetings, and presenting at the HAND Demo Day! Looking forward!





# Awards

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## EDUCATION

**Clara Kennedy**  
Social Media/Newsletters

**Ellen Tahmasyan**  
Seminars/Research

**Hugo Greenhill**  
Podcasts

## OUTREACH

**Robin Zhao**  
Awareness Campaign

**Daniel Hong**  
Events Team

**Jeffrey Yang**  
Highschool Program Team

## PUBLIC RELATIONS

**Lexi Kwon**  
Spotlights

## INNOVATION TEAM

**Christen Gerhart, Alex Wu, Max Orr, Giorgio Conta**

*These club members showed diligence, perfect attendance, and initiative throughout the quarter.*

To all of HAND: thank you for a wonderful first quarter!  
Wishing you a Happy Holiday & Happy New Year!

— ***HAND Leadership***



**HAND AT UCLA**