Issue number 27

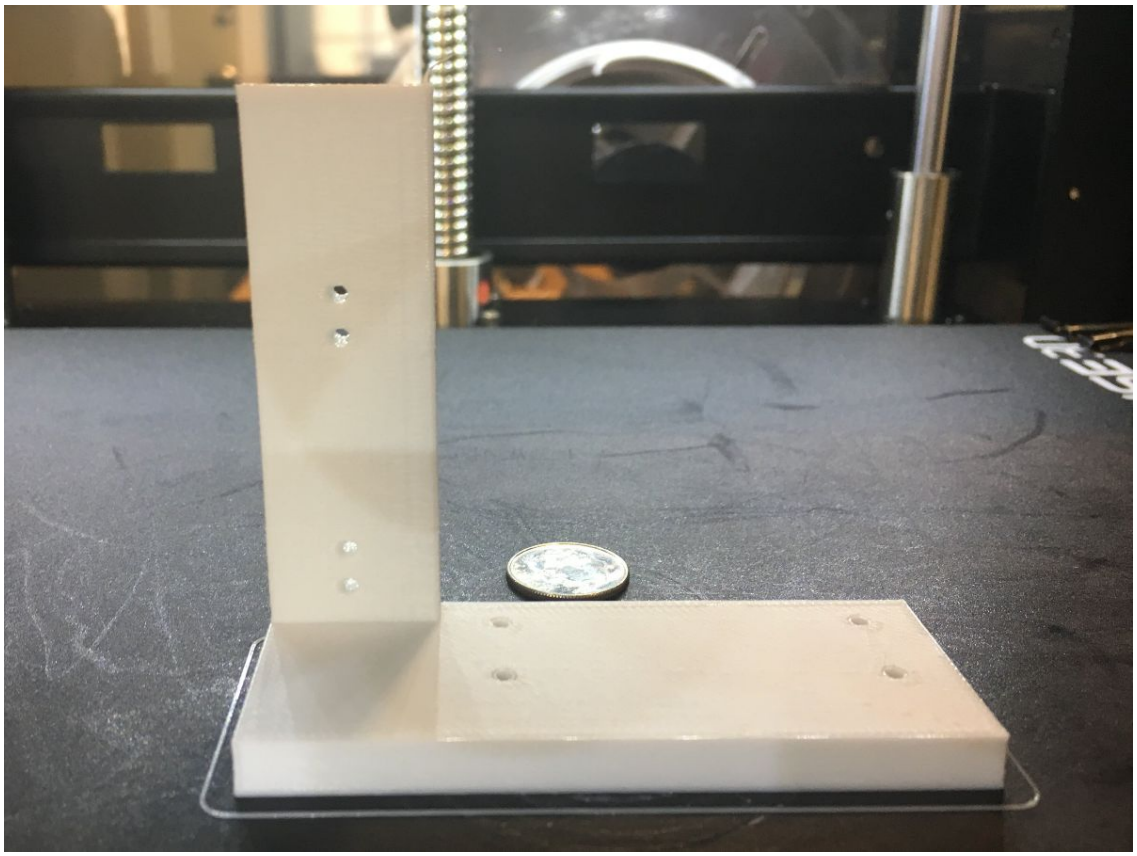
Makers @ HS/HSL: Custom Electrophysiology Gear

Maker:	Hans Moldenhauer
Affiliation:	Department of Physiology, University of Maryland School of Medicine
Project:	Design and 3D print an adapter for a micro manipulator
Used:	Tinkercad.com, Raise3D N2

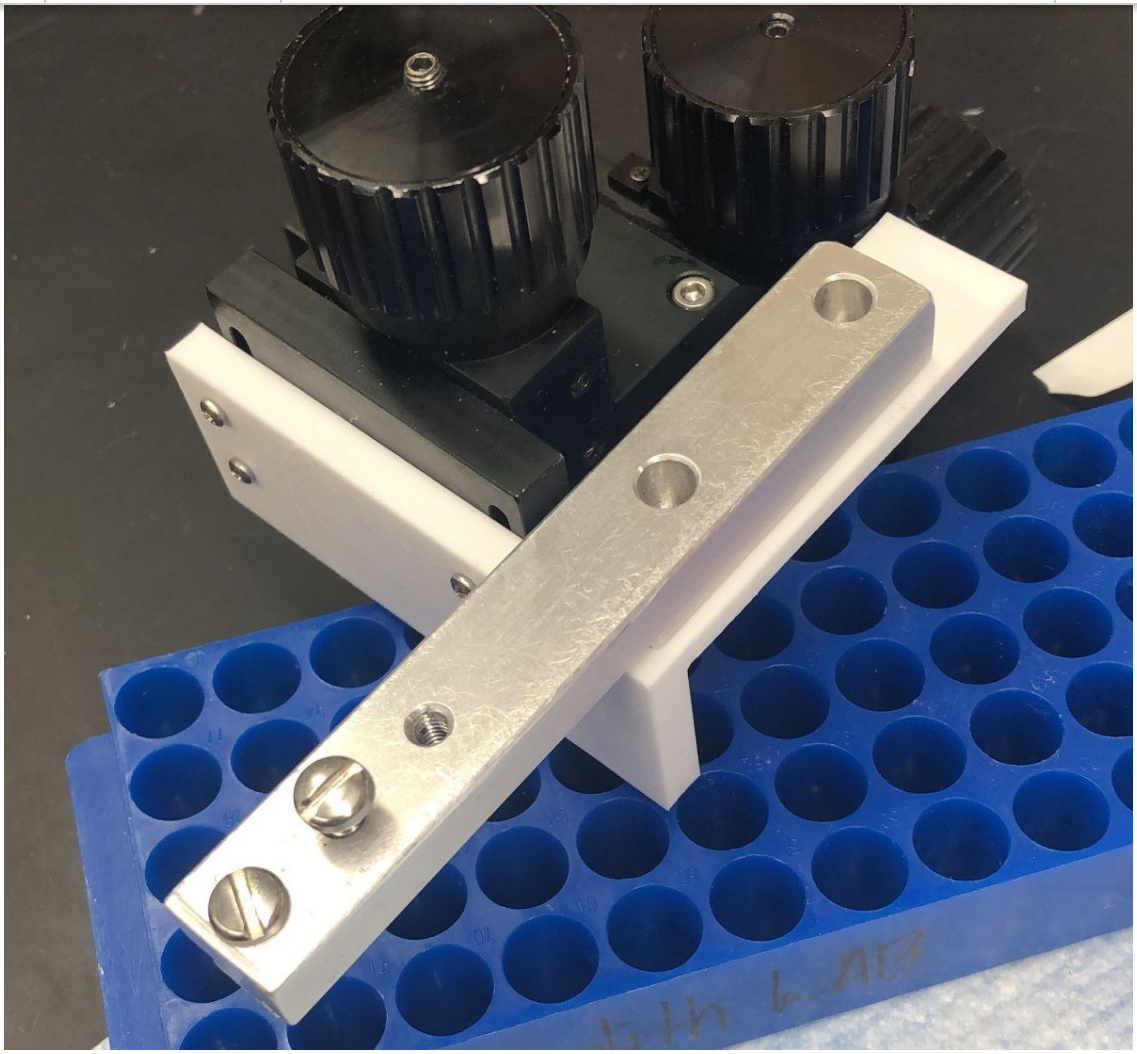
Hans Moldenhauer, PhD, is a postdoc in Dr. Andrea Meredith's Lab. Her lab is focused on the study of the "BK" subclass of ion channels. Ion channels are proteins that facilitate the movement of ions within cells. The BK ion channel is essential for the regulation of several key physiological processes.

Dr. Moldenhauer is working on a project to understand different mutations in the BK channel. These mutations are linked with neurological diseases like epilepsy and dyskinesia. He observes, "if we can understand the mechanisms by which the mutation affects the normal work of the channel, then we will understand more about the disease".

Dr. Moldenhauer used the HS/HSL Innovation Space to 3D print an adapter needed to adjust a micro manipulator used in his bench science work. He



The 3D print of Dr. Moldenhauer's micro manipulator adapter design.



The printed adapter fastened to the micro manipulator. Photo by Hans Moldenhauer.

"The adapter worked very well", he confirms. "I think that 3D printing your own equipment is the way to do it when possible. You can customize the design however you like. And if you don't know how to design something, you can look up tutorials online that will help."

Hans Moldenhauer received a PhD in neuroscience from Universidad de Valparaíso, Chile. In the near future he plans to design a custom cell chamber for his research.

Meet the Makers Speaker Series: Bradley Hennessie, CEO, NextStep Robotics

“Research Translation: Lab to Real World”

HS/HSL will host the CEO of Baltimore medical device startup NextStep Robotics for the next Meet the Makers event (RSVP here).

As a former researcher with the University of Maryland School of Medicine and Baltimore VA Medical Center, Mr. Hennessie and his team have developed a personalized robotics-therapy for stroke victims who suffer from "drop foot syndrome".

Mr. Hennessie will discuss his pathway from lab to market, securing funding, and future directions for NextStep Robotics.

Date: Friday, April 19, 2019
Time: 12pm - 1pm
Location: Health Sciences and Human Services Library, Gladhill Boardroom

** A light lunch will be provided – please RSVP here.*

Emerging Tech in the News and Literature

1. Robotics for Lower Limb Rehabilitation (nih.gov)
2. An Overview of Deep Learning in the Field of Dentistry (nih.gov)

Scale (architectmagazine.com)

Upcoming HS/HSL Innovation Space Workshops

Introduction to 3D Printing

- April 18, 2019

Introduction to 3D Modeling

- April 29, 2019

Register for our free workshops

New to the HS/HSL Innovation Space?

The Innovation Space is designed for innovative and collaborative hands-on learning experiences. It offers a HTC Vive VR system, two 3D printers, two 3D scanners, a plotter for poster printing, a zSpace virtual reality station, Google Cardboard viewers, a large DNA model, two molecule kits, a button maker, and a 3D printing pen. The staff provides orientations as well as workshops on a regular basis for those who are new to 3D printing and 3D scanning.

For more information, visit our webpage at http://www.hshsl.umaryland.edu/services/ispace/.