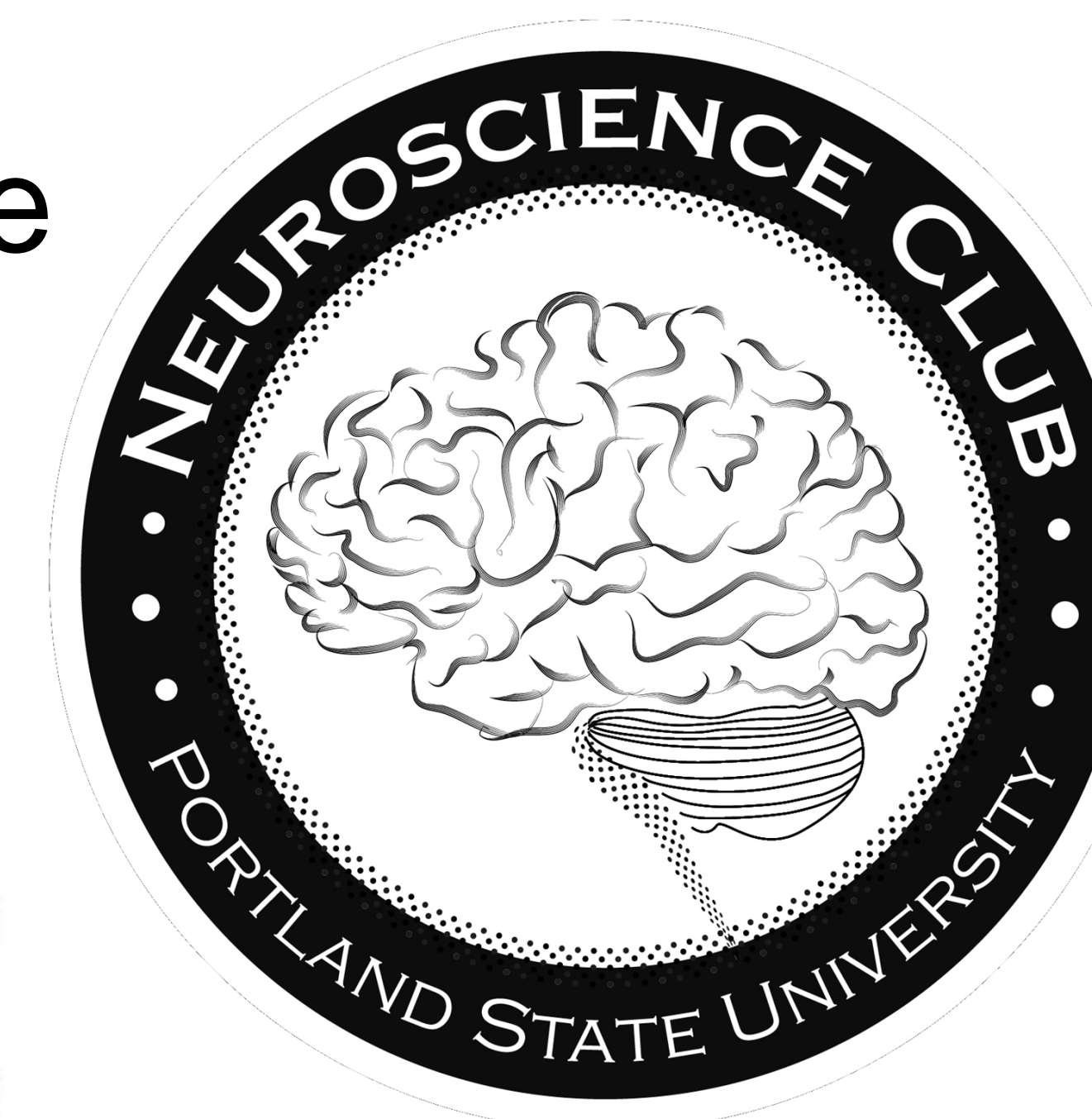


# Portland Neuroscience Outreach with the Portland State University Neuroscience Club, NW Noggin, and the Agile and Adaptive Robotics Lab

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## Abstract

Since I started my PhD in 2020 in the field of mechanical engineering with a focus on biomimetic robots actuated by artificial muscles that are controlled by Synthetic Neural Networks, I have found myself becoming more involved in not only neuroscience related research, but also neuroscience outreach. This outreach is facilitated by three organizations that I'm involved in: the Agile and Adaptive Robotics Laboratory (AARL), the Portland State University (PSU) Neuroscience Club, and Northwest Noggin.

The PSU Neuroscience Club mission is to build a foundational network of neuro-enthusiasts from various backgrounds and interests. Together we share knowledge, partner with outreach organizations, and provide opportunities for community engagement. Our focus is on increasing awareness of current research in neuroscience and to educate our student body on neurodiversity. Our aim is to foster passion and enthusiasm among newcomers. We recognize that neuroscience is a multidisciplinary field that thrives on academic collaboration and we plan to continue this endeavour into following years. With the support of our community, our events and meetings promote the message that neuroscience rocks!

## Agile and Adaptive Robotics Laboratory

The Agile and Adaptive Robotics Lab is interested in uncovering mechanisms of how animals achieve agile and adaptive control and applying these discoveries across a variety of fields.

By studying and developing models and controllers that mimic the structure and function of animal abilities, we work to discover how the wide range of adaptability that is seen in animal locomotion and movement is achieved.

These models and controllers have potentially significant impacts in a variety of fields including physical therapy and rehabilitation, diagnosis and treatment of diseases, and robotic and artificially controlled systems.

Over the past couple of years, we have been proud to work with Saturday Academy's Apprenticeships in Science & Engineering (ASE) mentorship program. Internships are eight-week, full-time summer positions, designed by us. For the 3rd year in a row, we were able to provide four high schoolers with real experience working in a neuroscience and biomechanics focused robotics research laboratory!



Ben and Dr. Hunt with ASE interns.

## NW Noggin

Northwest Noggin is a robust, creative, entirely volunteer driven non-profit organization (EIN: 81-3885713) that brings together scientists and artists and students of all ages to contribute their expertise, listen and learn from others, enthuse young people about science and art, share area educational resources and inform and excite the public about ongoing, taxpayer supported neuroscience research.

Graduate and undergraduate art and neuroscience volunteers are developing experts in science communication (#scicomm), teaching in academic priority K-12 schools, museums, correctional facilities, symphonies, hospitals, houseless youth centers, breweries, coffee shops, Native American summer camps, Congress and bike shop pubs! Check out the following pictures and QR codes for more details on the events we do.

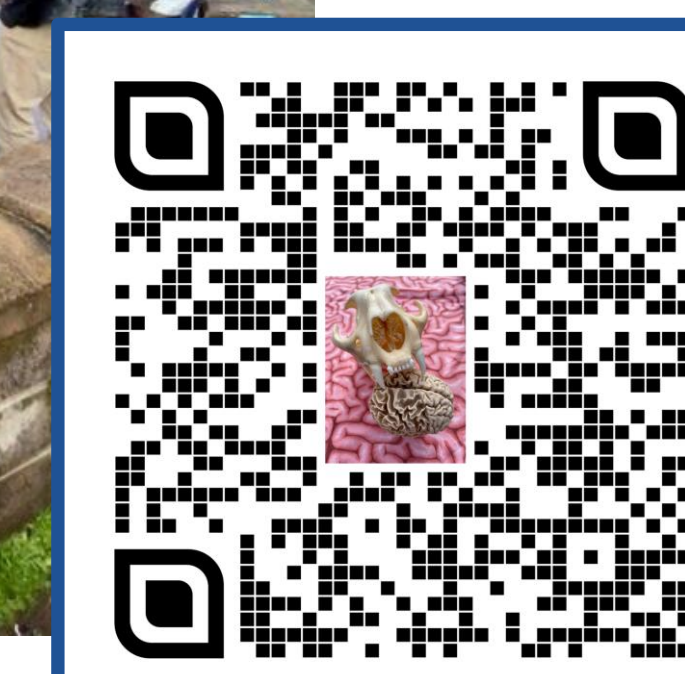
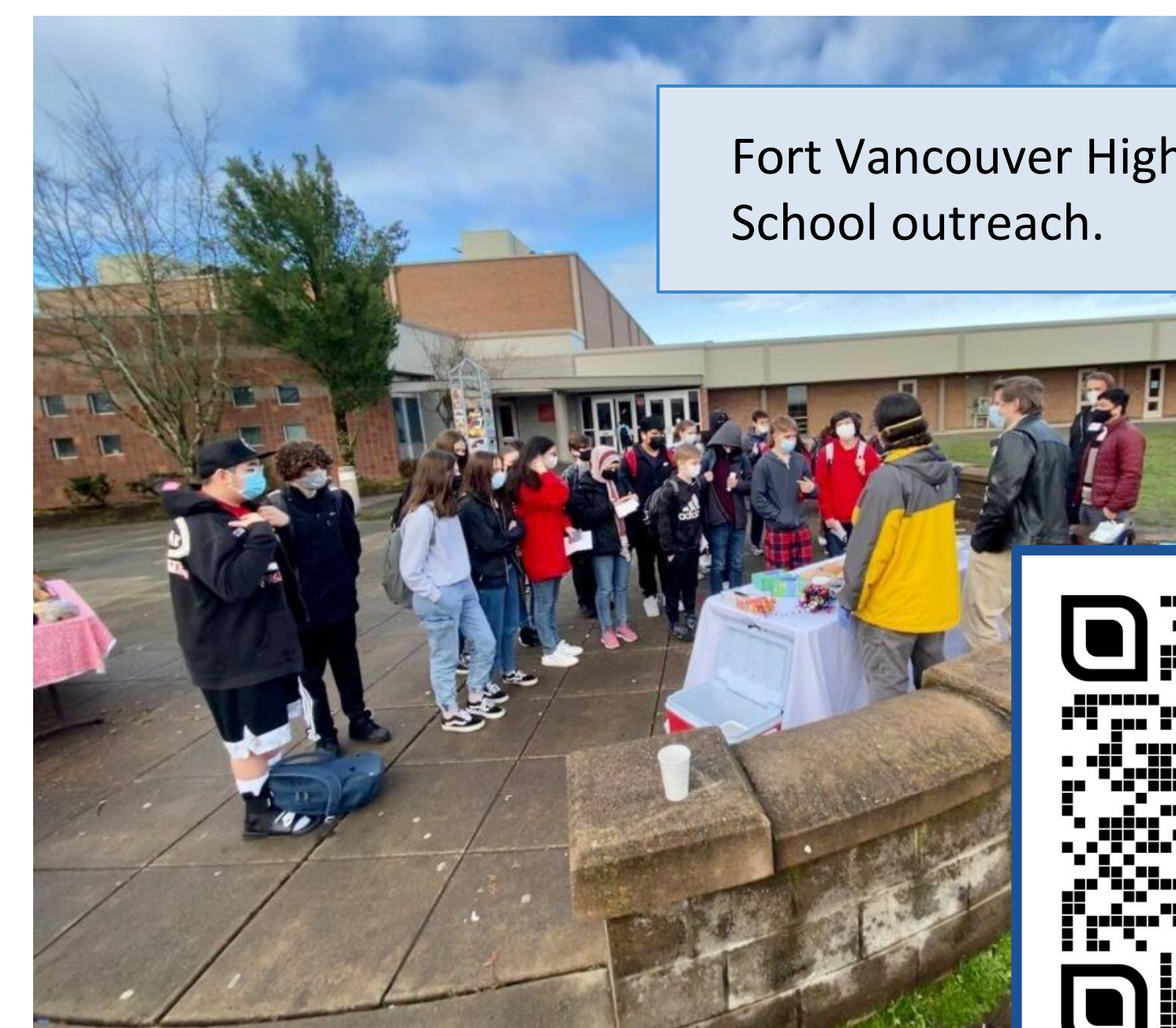
NW Noggin at Paseo, a multiday celebration of arts and culture in Portland.



NW Noggin at the Oregon Youth Neuroscience Conference. So fun and informative!



Fort Vancouver High School outreach.



## Portland State Neuroscience Club

In our Neuroscience Club, we pride ourselves on diversity and interdisciplinary representation. We believe that neuroscience is best understood when viewed through a multifaceted and collaborative educational lens. In pursuit of this, we work hard to attract, recruit, and embolden students from all areas of study at Portland State University to contribute their unique perspectives to our exploration of neuroscience.

After years of student-led advocacy, our club has paved the way for PSU's first neuroscience curriculum via an Interdisciplinary Neuroscience Minor. Through the perseverance of club members and affinity students, PSU will now offer a formalized track of study. This pioneering minor will offer a diverse curriculum that teaches neuroscience through a multifaceted perspective. The University recognizes the importance of a systems-based approach to teaching neuroscience using methodology that accurately represents the diversity of the field.

PSU Neuroscience Club is committed to having events every week! This year we have also started having a neuroscience themed movie night every other week. We are one of the largest and most active clubs at our school. Check us out on Instagram!



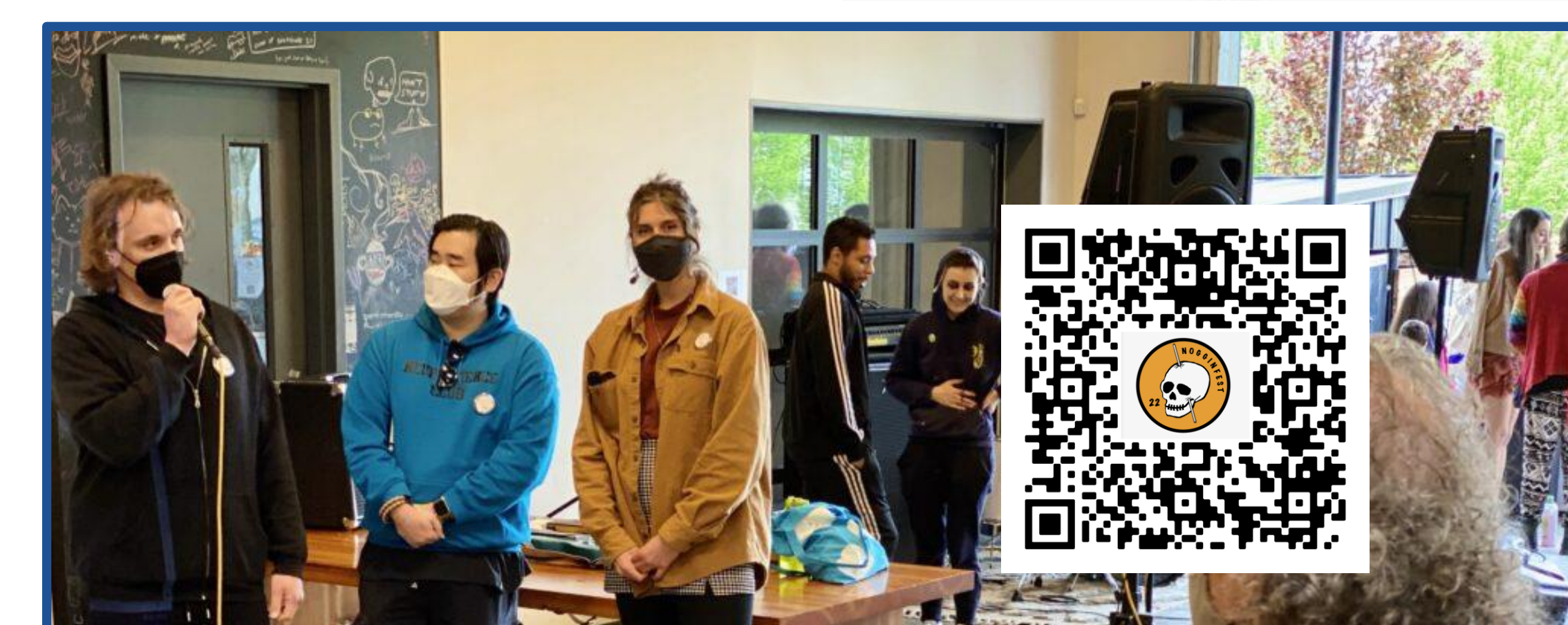
Feel free to email us as well. We are always looking to make connections with researchers, fellow students, artists, institutions, and those with a general interest in neuroscience.

[neuro@pdx.edu](mailto:neuro@pdx.edu)

Bonus points if you would like to be a guest speaker at one of our events or have an interesting state-of-the-art neuroscience journal paper to share!

## NogginFest 2022

NogginFest is the largest student-run, accessible, public celebration of music, art and interdisciplinary neuroscience in the Pacific Northwest! And it's FREE! This event was organized by NW Noggin and PSU Neuroscience Club, and I'm very proud to have been a part of it.



Ben speaking at NogginFest

## Acknowledgements

I would like to extend my sincere appreciation to my advisor, Dr. Alex Hunt, for his help, patience, and understanding over these past few years. Without him I wouldn't be where I am today. Thank you to Dr. Bill Griesar and Dr. Jeff Leake for all you do for NW Noggin, NogginFest, and neuroscience outreach in general. I'm continually impressed by your energy and positive attitudes.

I am eternally grateful to Dr. Denesa Lockwood, OHSU, and the Portland Alcohol Research Center for agreeing to pay for our poster and print it at the last minute.

We appreciate the Dana foundation for providing a grant that helped make Nogginfest possible this year, SfN for covering my conference registration, and the NSF for funding our C3NS NeuroNex research group.

Lastly, thank you to all the members of the AARL, PSU Neuro Club, and all the volunteers at NW Noggin events. We stand on the shoulders of giants, and it is our duty to uplift others to even greater heights.

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- SfN registration costs have been covered by Society For Neuroscience.
- Nogginfest '22 was financed in part by a grant from the Dana Foundation.



Spending the day doing neuroscience outreach to grades K-6 at Washington Elementary.