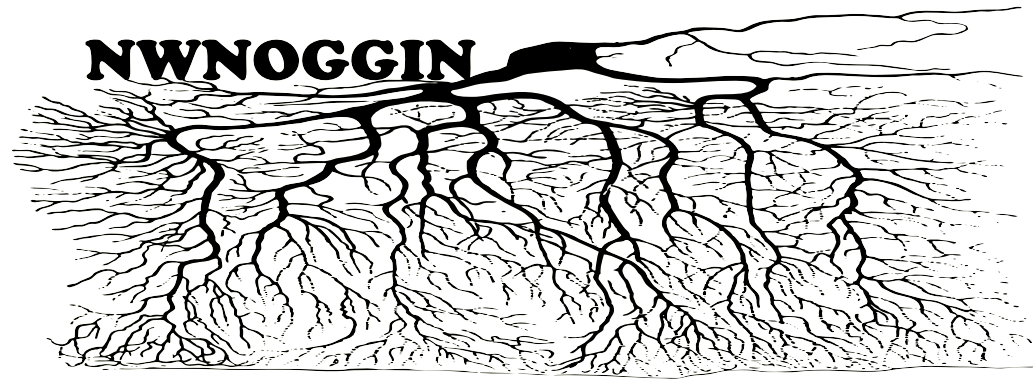


# NWNOGGIN



[nwnoggin.org](http://nwnoggin.org)

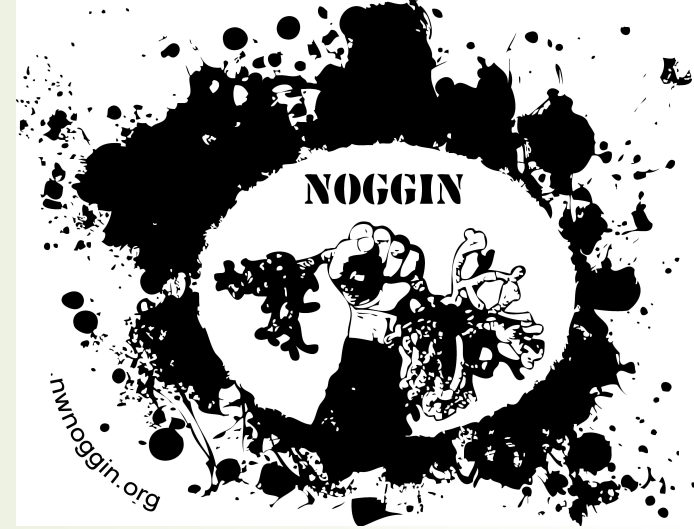
Arts integrated neuroscience  
outreach for K-12 & community





# Why art *and* brains..?

- Motivation, engagement, empathy
- Exploration, creativity, INNOVATION
- Personal relevance of STEAM material
- You are made of something physical
- Internships, jobs, service, careers





# Connections matter

Oh the places you'll go!



- **Academic priority K-12, tribal majority schools, rural communities**
  - Not always well-funded, or valued, often ignored, subjected to standardized testing that primarily benefits others. Complex brain development underway, unacknowledged diversity, prevalence of mental health issues ...
- **Homeless youth (p:ear), MacLaren Youth Correctional Facility**
  - *It's like people see me as an object, not as a human being*
- **Young graduate researchers, undergraduates (e.g., PSU, OHSU, PNCA,...)**
  - *How does my research relate to the world? How can I explain it?*
  - *Where can I go from here? How do I help kids from K-12 schools?*
- **Artists**
  - *How does my work relate to other fields? How do I connect with new audiences? How is my practice influenced and enriched by discoveries about the brain?*
- **Area businesses (BioGift, Intel, Velo Cult)**
  - *How can we better connect with everyone in our community?*
- **Members of the public**
  - *Why are my taxes spent on research? Art? What are we discovering?*



# NW Noggin brings art & science to communities which don't have access to this sort of educational programming

**AND WE PARTNER!**

**There are resources in all our communities...**

- Yes! OHSU at OHSU
- Oregon Museum of Science & Industry
- Portland Alcohol Research Center
- p:ear
- Portland Art Museum
- Oregon Youth Authority
- Rural communities: ***we go places!***



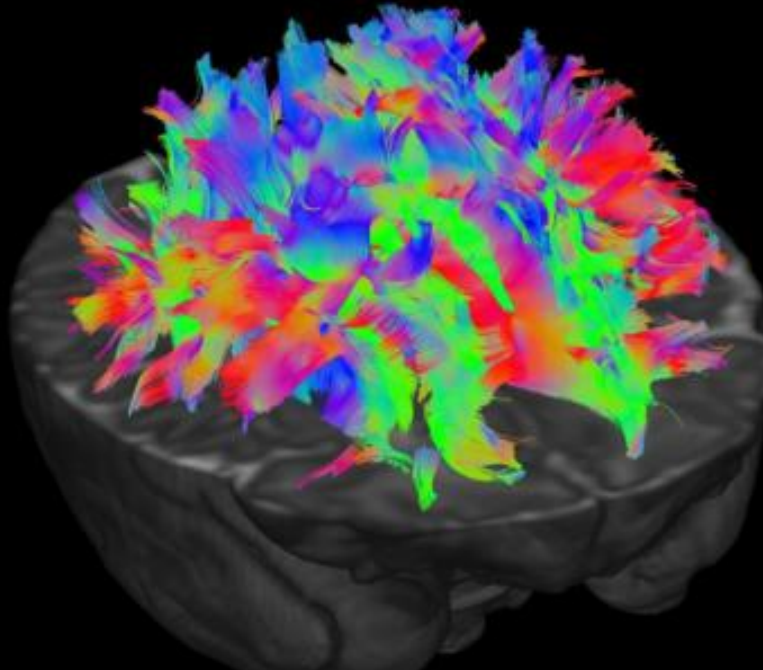


# Outreach Creates Opportunity

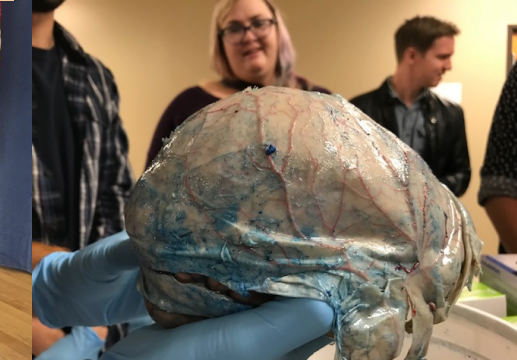
- Cross-disciplinary exposure
- Teaching experience
- Networking
- Career opportunities
- Community engagement
- ALL VOLUNTEER







**Educate  
Engage  
Inspire**



From Human Connectome Project

- More places, more people, more awareness of shared community. ***The more we create art, and cross disciplines/institutions, the more connections we see.***
- ***This is how brains develop:*** locally linked neurons at the start, but rich, distributed networks develop/collaborate to get things done. We want more kids, more people *synapsed* to opportunities in education, careers, research, outreach, service and art...



# SfN conference 2017

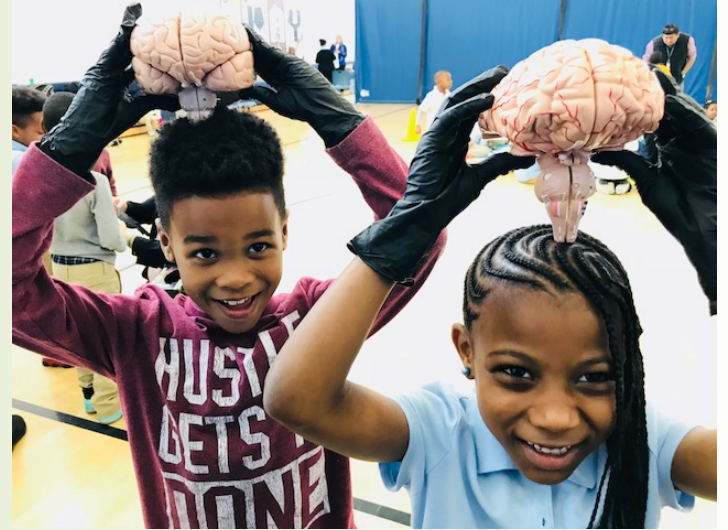


**ART OF  
NEURO-  
SCIENCE**





# Turner Elementary

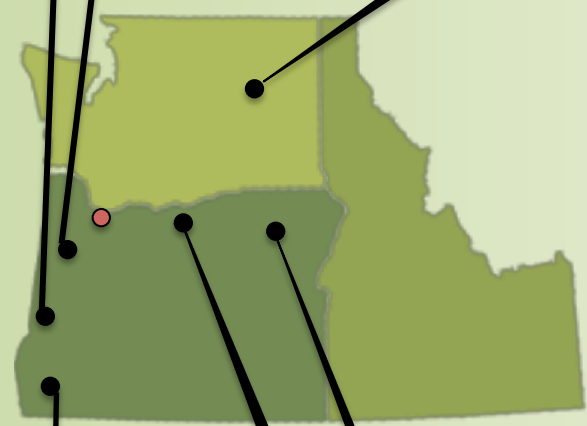




# Rural Outreach Events

Siletz, Amity & Willamina, OR  
Pop: 4,000

Davenport, WA  
Pop: 1,700



Meservy Meadows, OR  
Pop: ~40

La Grande, OR  
Pop: 13,000

Heppner & Lone, OR  
Pop: 1,240

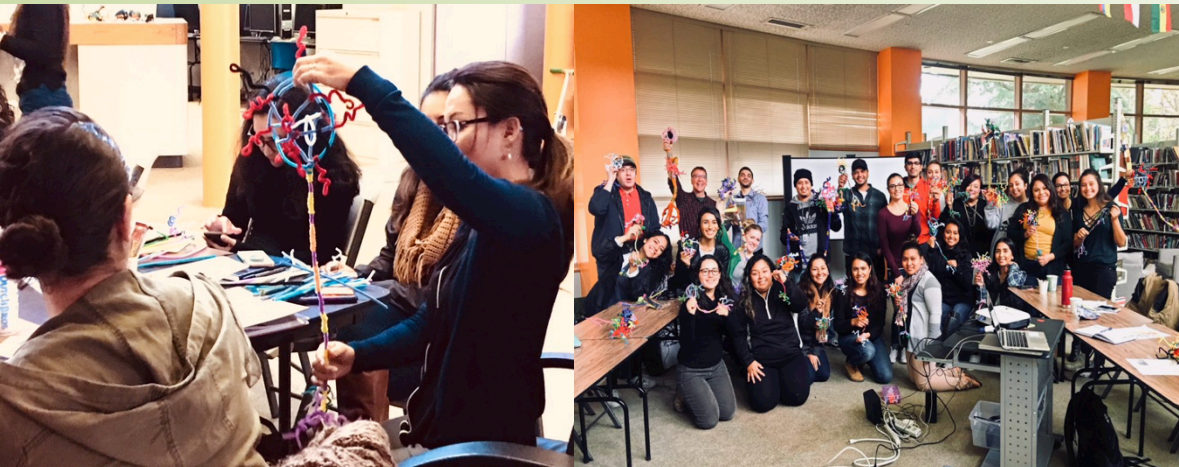
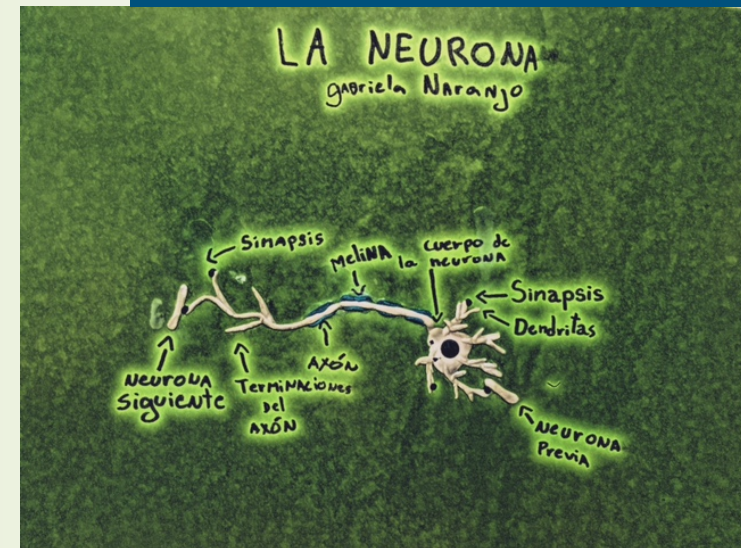






# Collaboration with Latino Network

- A Latino-led organization to help youth and families reach their full potential
- Mentors were interested in adolescent brain changes and how these changes impacted behavior
- Highlighted benefits of bilingualism
- Bringing neuroscience to under-represented Latinos; empowering people to pursue more





# Synapses, Stories & Song

- Confederated Tribes of the Grande Ronde
- Confederated Tribes of the Siletz





# Neuroscience & Law

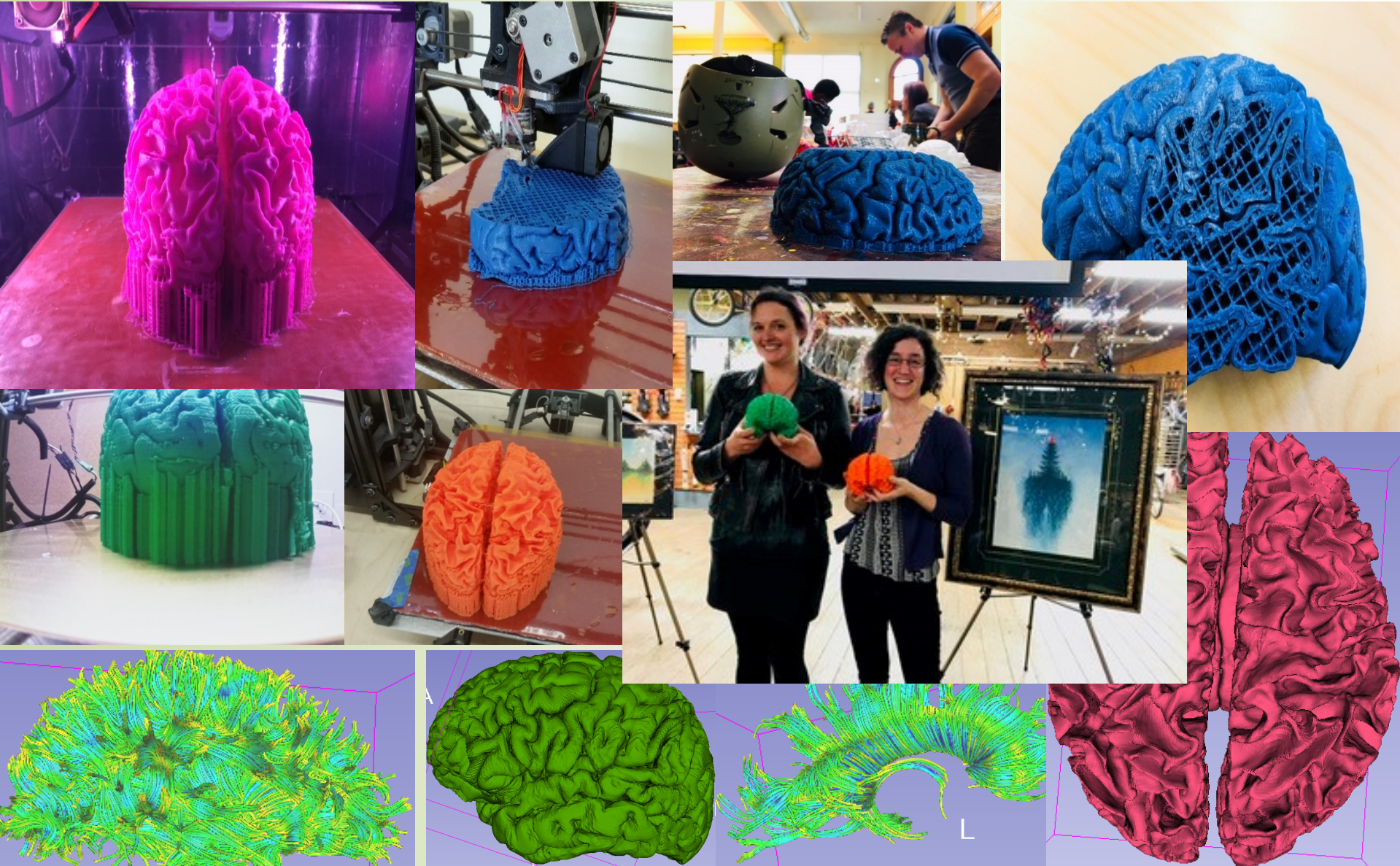
## MacLaren Youth Correctional Facility





# Art + Neuroscience = 3D printed brain models

Collaboration with Make + Think + Code @ PNCA, Intel, PDX 3D Printing Lab!





# Expanding Networks Means Wider Connections And Diverse Opportunities





# Music & Performance

Accessibility  
Community  
Memory



I touched human brains  
thanks NW Noggin





# NOGGIN FEST

A CELEBRATION OF SCIENCE, ART, AND MUSIC

**FRI OCT 19**

6pm-11pm

**B\*\*\*\*\*S OF THE SUN**

**SHANNON ENTROPY**

**DISENCHANTER**

**MOUTHBREATH**

**STARGASM**

**THE WATERSHED**

5040 SE MILWAUKIE

ALL AGES ~ \$5-10

**SAT OCT 20**

12pm-12am

**KARMA RIVERA**

**THE MERCURY TREE**

**INTERNET BEEF**

**B.R.U.C.E**

**HUMAN OTTOMAN**

**WHEN WE MET**

**JAZZ BOYFRIENDS**

**SUPER SECRET BAND**



ALL PROCEEDS TO THE NONPROFIT: NW NOGGIN





## Making a pipe cleaner neuron...

1. Start with a good amount of (colorful) pipe cleaners, I have 20 here.



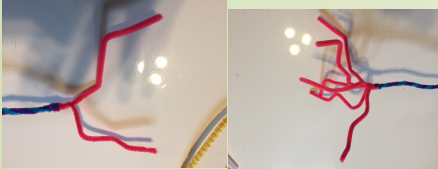
2. Create the soma or cell body by linking several pipe cleaner hoops together.



3. Attach dendrites to your soma by wrapping them around the soma pipe cleaners.



4. Attach axon terminals to the other end of your axon.



5. Wrap myelin around your axon.

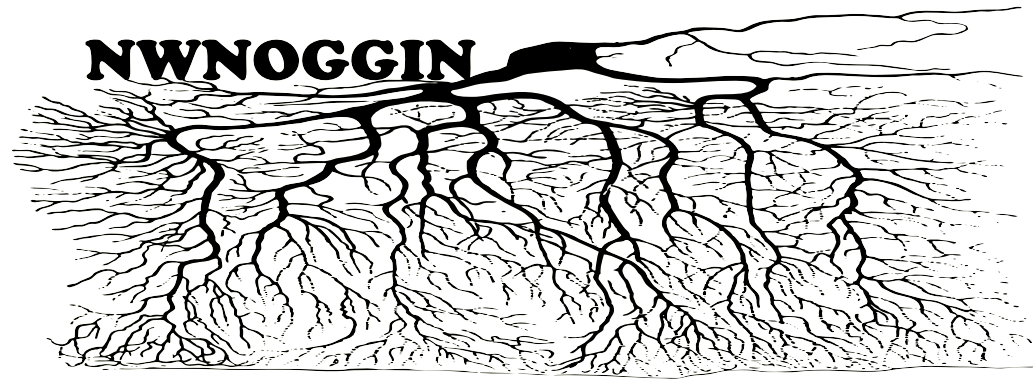


6. Create a nucleus for your soma by wrapping two pipe cleaners around each other. Attach your nucleus inside your soma. You have a neuron!





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