SEPTEMBER 2025

Modeling Tools Updates

Spread the word: Applications for the Shanahan Foundation Fellowship opening soon!

Applications for **The Shanahan Foundation Fellowship at the Interface of Data and Neuroscience** open **September 15th**. The fellowship encourages new PhDs from outside of neuroscience to apply their quantitative skills to our datasets. Early career-scientists from computer science, physics, math, and many other fields will be selected to join the Allen Institute and UW for a 3-year fellowship where they will have the freedom to explore a new field and design their own research projects. Applications are due **December 1st, 2025.**

Participate in the "Neuro for AI & AI for Neuro" Workshop at AAAI 2026 in Singapore!

Join us for the workshop "**Neuro for AI & AI for Neuro: Towards Multi-Modal Natural Intelligence**," to be held at the AAAI-26 conference in Singapore (January 20-27, 2026). The workshop will bring together leaders in AI, neuroscience, and neuromorphic engineering. This one-day, in-person event will explore the two-way exchange between biology and machine learning—from cortical microcircuit principles inspiring robust AI architectures to AI methods unlocking new insights into brain function.

The program features invited talks, panels, spotlight presentations, and a poster session designed to maximize interaction and collaboration. Attendees will also participate in a roundtable discussion to define key challenges and enjoy a sponsored social gathering for networking. Submissions of papers and abstracts are welcome from researchers in academia and industry working at the intersection of neuroscience and AI. **Submit your paper to participate in the workshop by October 30.**

2025 Allen Institute Modeling Software Workshop

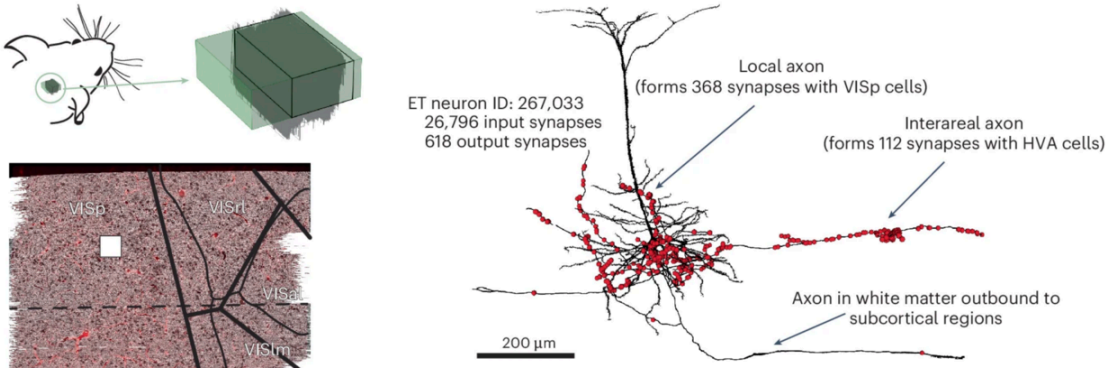
The 2025 Modeling Software Workshop was a jam-packed three-day program that brought together 25 participants and 8 instructors to dive into **BMTK**, **SONATA**, and **VND** tools. Thank you to everyone who attended and made it such a fun and engaging event!

VIEW THE FREE TUTORIALS

Learn how to use our tools with tutorial videos

Want to use our tools but need a little extra guidance besides the tutorials? Now you can **watch videos** that will help you get started. These lectures overview the **tutorials** covering our software tools for building, simulating, and visualizing bio-realistic models of brain circuits. They were recorded during the 2025 Allen Institute Modeling Software Workshop. Materials covered in the videos include less-known features that many users might find helpful.

New paper: The synaptic architecture of layer 5 thick tufted excitatory neurons in mouse visual cortex



A new study published in *Nature Neuroscience* investigates the connectivity of mouse visual cortex thick tufted layer 5 pyramidal cells, also known as extratelencephalic neurons (L5-ET). It uses the publicly available electron microscopy **MICrONS dataset**. The results highlight a circuit motif where the L5-ET subclass of excitatory cells forms a subcircuit with specific inhibitory cell types. A model of this circuit motif was simulated using BMTK and SONATA. The motif's architecture was observed to sharpen the tuning of L5-ET neurons and promote gamma oscillations. The results suggest that the L5-ET circuit facilitates decoupling of activity within the behaviorally important L5-ET subnetwork from other L5 subpopulations.

Find us at SfN 2025!

Are you coming to **SfN 2025**? We will be there in San Diego on November 15-19. Find us at our posters or at the Allen Institute Booth!

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