

Young Computational Neuroscientist Program

12 weeks | 24 live sessions | Guided computational research mentorship

CLASSES 9-12

Can you solve a mystery of the brain?

STAGE 01

- Common to all participants
- Laying the foundations of neuroscience, mathematics, and programming

STAGE 02

- Common to all participants
- Introducing 3 computational approaches
 - Feedforward Networks
 - Reinforcement Learning
 - Attractor Systems

STAGE 03

- Participants divided into 6 teams - 2 per computational approach
- Guided research training session

MODULES/WEEKS

STAGE 01

- **Week 01** - The Brain as a Scientific Mystery
- **Week 02** - Mathematics as a Language for Brain Models
- **Week 03** - Python for Brain Modeling
- **Week 04** - Neurons and Neural Signaling

STAGE 02

- **Week 05** - Feedforward Neural Networks
- **Week 06** - Attractor and Recurrent Neural Networks
- **Week 07** - Reinforcement Learning

STAGE 03

- **Week 08** - Introduction to the Research question and Model design
- **Week 09** - Building the Baseline Model
- **Week 10** - Running Computational Experiments
- **Week 11** - Analysis and Neuroscientific Experiments
- **Week 12** - Research Communication and Symposium

EXPECTED OUTCOMES

- 24 guided live sessions covering neuroscience, mathematics, Python and computational modelling
- Practical research experience
- Guided research mentorship

IMPORTANT DATES

- Application Deadline - August 31st, 2026
- Registration Deadline - September 15th, 2026

CLASSES BEGIN ON 21ST SEP, 2026!

WRITE TO US:

workshops@neurogati.com

VISIT OUR WEBSITE:

neurogati.com

APPLY NOW!



YOUR 12-WEEK RESEARCH JOURNEY

Feedforward networks • Attractor networks • Reinforcement learning

1

LEARN

Neuroscience, math and Python

2

BUILD

Create a working computational model

3

INVESTIGATE

Run experiments and interpret results

4

PRESENT

Share your research at the symposium

Choose from six mysteries: Motion Illusion • Face Recognition • Memory Loss • Mood States • Parkinsonian Freezing • ADHD Exploration

EXPLORE THE PROGRAM → WWW.NEUROGATI.COM

Can you solve a mystery of the brain?

TEAM 01

The Moving Enigma Illusion

- **Research Question** - How can a stationary image produce neural signals that are interpreted as movement?
- **Central hypothesis** - Particular combinations of contrast, spatial filtering and temporal response differences can produce motion-like activity even when the image is stationary.

TEAM 02

Seeing a face but not the person

- **Research Question** - How can face detection remain intact while face identity recognition fails?
- **Central hypothesis** - Prosopagnosia can result from disruption of higher-level identity representations or their readout, even when early visual processing and face detection remain functional.

TEAM 03

Selective Memory Loss in Alzheimer's Disease

- **Research Question** - Why are some stored memories more vulnerable than others?
- **Central hypothesis** - Memories with weaker, less distributed or more overlapping representations may have shallower attractor basins and therefore disappear earlier as the network is damaged.

TEAM 04

Mood as an Attractor

- **Research Question** - How can a temporary emotional change become a persistent mood state?
- **Central hypothesis** - Strong recurrent feedback can deepen a mood attractor so that the network remains in that state after the original trigger has disappeared.

TEAM 05

Parkinsonian Freezing at a Doorway

- **Research Question** - Why might a narrow doorway cause an interruption of otherwise successful walking?
- **Central hypothesis** - At a spatial bottleneck, action alternatives may become closely matched or the local value gradient may become weak or ambiguous. Reduced dopaminergic action selection could then produce freezing.

TEAM 06

ADHD and Excessive Exploration

- **Research Question** - Could apparently inconsistent behaviour arise from an agent that explores too much?
- **Central hypothesis** - Excessive exploration can reduce consistent task performance while sometimes improving discovery and adaptation in changing environments.

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