

# Dr Candice Lee

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Neuroscientist specializing in motor and sensory cortex, multi-photon microscopy and neural signal processing.

## EDUCATION

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### University of Ottawa

Ottawa, Canada

#### Doctor of Philosophy (PhD) in Neuroscience

2016–2022

- › **Thesis:** "Cell-type specific responses to reinforcement in the primary motor cortex"
- › **Supervisor:** Prof. Simon Chen

#### Bachelor of Science (BSc) with Honours in Biomedical Sciences

2012–2016

- › **Thesis:** "Neural Correlates of Spatial Navigation"
- › **Supervisor:** Prof. Len Maler

## EXPERIENCE

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### University of Oxford

Oxford, UK

#### Postdoctoral Research Scientist

Feb 2023–present

- › Led a project investigating cellular and circuit mechanisms of sensory processing and learning, focusing on neural dynamics during texture discrimination and memory.
- › Supervised by Prof. Randy Bruno.

### University of Ottawa

Ottawa, Canada

#### Research Technician

Nov 2022–Feb 2023

- › Finalized and extended work initiated during doctoral research.
- › Supervised by Prof. Simon Chen.

#### PhD in Neuroscience

Sep 2016–Nov 2022

- › Investigated mechanisms of reinforcement and plasticity in the motor cortex, focusing on how distinct cell types respond to reward and reward-predicting cues, and identifying their input sources.
- › Supervised by Prof. Simon Chen.

#### Undergraduate Research Assistant

Apr 2015–Sep 2016

- › Established chronic neural recordings using tetrode implants in freely swimming fish to study brain dynamics during spatial navigation.
- › Supervised by Prof. Len Maler.

#### Undergraduate Research Assistant

Apr 2015–Sep 2015

- › Contributed to research on access to reproductive health services in vulnerable populations.
- › Supervised by Prof. Angel Foster.

## KEY SKILLS

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- › **Microscopy and Electrophysiology:** Extensive experience with **in vivo two- and three-photon imaging**, **intrinsic hemodynamic imaging** and **chronic electrode implants**.
- › **Surgical Techniques and Animal Models:** Strong expertise in **animal cranial surgeries**. Developed new protocols alongside veterinary teams to **ensure compliance**. Extensive experience with **animal behavioural assays**.
- › **Scientific Leadership:** Founding member of two research laboratories, demonstrating strong ability to build research infrastructure, lead projects independently, and drive innovation.
- › **Programming and Data Analysis:** **Python** and **MATLAB** for neural and behavioural data processing, analysis, and visualization. **Closed loop, real time systems** in **C++** using microcontrollers including biometric data tracking.
- › **Research & Development:** Deep mechanistic understanding of **neural systems**. Well-versed in the **full research lifecycle**, from initial conception through to the **presentation and publication** of high-quality evidence.
- › **Collaboration:** Proven ability to **collaborate effectively** and cultivate relationships with key collaborators, including senior academics and **veterinary compliance teams**.

## FELLOWSHIPS & SCHOLARSHIPS

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- › Natural Sciences and Engineering Research Council of Canada Postdoctoral Fellowship. 2023–2025
- › Ontario Graduate Scholarship. 2018–2019, 2020–2021, 2021–2022
- › Queen Elizabeth II Graduate Scholarship in Science and Technology. 2017–2018, 2019–2020
- › University of Ottawa Excellence Scholarship. 2017–2021
- › Masters Admission Scholarship. 2016
- › Undergraduate Admission Scholarship. 2012

## ACADEMIC ACHIEVEMENTS & AWARDS

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- › Award of Excellence. For exceptional performance and commitment. University of Oxford. 2024
- › Brain Star Award. National paper award. Canadian Institutes of Health Research. 2023
- › Best Doctoral Thesis in Neuroscience Award. University of Ottawa. 2022
- › Neuroscience Doctoral Award. For excellent research performance. University of Ottawa. 2022
- › Best Poster Presentation Award. University of Ottawa Brain and Mind Conference. 2022
- › FENS-IBRO/PERC Travel Award. International competition to fund travel to FENS conference. Paris. 2022
- › Best Doctoral Poster Presentation. Brain Health Research Day Conference. 2021
- › Best Doctoral Poster Presentation in Neuroscience. University of Ottawa Research Day. 2019
- › Leadership Award. In recognition of role on graduate student association. University of Ottawa. 2018
- › Dean's Honour List. University of Ottawa. 2016

## PUBLICATIONS

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**Whole-brain mapping of long-range inputs to the VIP-expressing inhibitory neurons in the primary motor cortex**  
Candice Lee\*, Sandrine Côté\*, Nima Raman, Hritvic Chadhury, Bryan Mercado, Simon X. Chen (\* equal contribution)  
*Frontiers in Neural Circuits*, 2023.

**Cell-type-specific responses to associative learning in the primary motor cortex**

Candice Lee, Emerson Harkin, Xuming Yin, Richard Naud, Simon X. Chen  
*eLife*, 2022.

Received CIHR Brain Star publication award, recognizing excellence in Canadian research.

**Light Up the Brain: The Application of Optogenetics in Cell-Type Specific Dissection of Mouse Brain Circuits**

Candice Lee, Andreanne Lavoie, Jiashu Liu, Simon X. Chen, Bao-hua Liu  
*Frontiers in Neural Circuits*, 2020.

**Neural activity in a hippocampus-like region of the teleost pallium is associated with active sensing and navigation**

Haleh Fotowat, Candice Lee, James Jaeyoon Jun, Len Maler  
*eLife*, 2019.

## TEACHING

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### University of Ottawa

Ottawa, Canada

#### Coordinator/Instructor for Undergraduate Summer Student Research Program

Apr 2019–Apr 2020

- › Led a summer course on scientific communication and presentations.

## COMMITTEES

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- › External Reviewer for Natural Sciences and Engineering Research Council of Canada. 2024–present  
Evaluation of national-level fellowship and scholarship competition.
- › President, Graduate Student Association. University of Ottawa. 2019–2020
- › Academic Coordinator, Graduate Student Association. University of Ottawa. 2018–2019
- › Conference Organizer for Career Day. Institutional conference, University of Ottawa. 2019
- › Student Chair for Faculty of Medicine Research Day. Institutional conference, University of Ottawa. 2018
- › Student Chair for Brain Health Research Day. Local conference, Ottawa, Canada. 2018