

CÉDRIC FOUCAULT

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EDUCATION AND PROFESSIONAL EXPERIENCE

2024 – present Junior Research Fellow of Christ Church at the University of Oxford

Early-career research position awarded by Christ Church College to conduct independent research through a prestigious four-year fellowship
Working in collaboration with Professor Laurence Hunt's research group in the Department of Experimental Psychology, University of Oxford, UK

2020 – 2023 PhD in Cognitive Computational Neuroscience at NeuroSpin

Supervised by Florent Meyniel
Cognitive Neuroimaging Unit, NeuroSpin (CEA-Inserm),
University of Paris-Saclay, & Sorbonne University, Paris, France
Thesis: *"Adaptive learning in humans, brains and neural networks: The role of uncertainty and probabilities"*

2018 – 2020 M.S. of Research in Cognitive Science (CogMaster)

Highest honors (mention très bien)
École Normale Supérieure de Paris & University of Paris, France

2019 – 2020 M.S. Research Intern at NeuroSpin

Supervised by Florent Meyniel
Cognitive Neuroimaging Unit, NeuroSpin (CEA-Inserm), Gif/Yvette, France

2018 – 2019 M.S. Research Intern at Integrative Neuroscience & Cognition Center

Supervised by Claire Sergent
Integrative Neuroscience & Cognition Center, Paris, France

2015 – 2018 iOS Software Engineer at Apple

Core User Interface Team
Apple, Cupertino, California, USA

2012 – 2014 M.S. of Research in Computer Science & Human-Computer Interaction

Highest honors (mention très bien)
École Normale Supérieure Paris-Saclay & University Paris-Saclay, France

2014 (7 mos) M.S. Research Intern at Siemens Corporate Research

Supervised by Sam Zheng
User Experience Group, Siemens Corporate Research, Princeton, USA

2013 (5 mos) M.S. Research Intern at UC Santa Cruz

Supervised by Sri Kurniawan
ASSIST Lab, University of California Santa Cruz, USA

2011 – 2012 B.S. in Computer Science

Highest honors (mention très bien)
École Normale Supérieure Paris-Saclay & University of Paris, France

2012 (3 mos) B.S. Research Intern at Inria Grenoble

Supervised by Radu Patrice Horaud
Perception Group, Inria Grenoble, France

- 2010 – 2011 B.S. in Electrical & Telecommunications Engineering**
 Highest honors (mention très bien)
 École Normale Supérieure Paris-Saclay & University Paris-Saclay, France
- 2008 – 2010 Classes Préparatoires: MPSI, PSI***
 Lycée Fénélon Sainte-Marie, Paris, France
2 years of intensive Maths/Physics preparing the competitive entrance to top French “Grandes Écoles”

GRANTS AND FELLOWSHIPS

- 2024 – 2028 Junior Research Fellowship, Christ Church, University of Oxford
Highly competitive fellowship enabling early-career researchers to undertake independent research and establish their academic profile
- 2022 CEA PACE mobility award (grant for a visit of a few weeks to support PhD student mobility for their postdoctoral research in Europe)
- 2020 – 2023 PhD fellowship from École Normale Supérieure Paris-Saclay
 (Contrat Doctoral Spécifique Normalien, 3 years)
- 2010 – 2014 École Normale Supérieure Paris-Saclay (Normalien, 4 years)

PUBLICATIONS IN INTERNATIONAL PEER-REVIEWED JOURNALS AND CONFERENCES

Published/In press

Foucault, C.*, Bounmy, T.*, Demortain, S., Thirion, B., Eger, E., Meyniel, F. (2025). “A non-monotonic code for event probability in the human brain”. *Nature Communications*.
 Article: [nature.com/articles/s41467-025-65727-7](https://www.nature.com/articles/s41467-025-65727-7)

Foucault, C., & Meyniel, F. (2024). “Two determinants of dynamic adaptive learning for magnitudes and probabilities”. *Open Mind: Discoveries in Cognitive Science*.
 Article: doi.org/10.1162/opmi_a_00139
 Data & Code: <https://github.com/cedricfoucault/ada-learn>

Foucault, C., & Meyniel, F. (2021). “Gated recurrence enables simple and accurate sequence prediction in stochastic, changing, and structured environments”. *eLife*.
 Article: doi.org/10.7554/eLife.71801.
 Code: github.com/cedricfoucault/networks_for_sequence_prediction

Zheng, X. S., **Foucault, C.**, Matos da Silva, P., Dasari, S., Yang, T., & Goose, S. (2015). “Eye-wearable technology for machine maintenance: Effects of display position and hands-free operation”. In *Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems* (pp. 2125-2134).

Zheng, X. S., Matos da Silva, P., **Foucault, C.**, Dasari, S., Yuan, M., & Goose, S. (2015). “Wearable solution for industrial maintenance”. In *Proceedings of the 33rd Annual ACM Conference Extended Abstracts on Human Factors in Computing Systems* (pp. 311-314).

Foucault, C., Micaux, M., Bonnet, D., & Beaudouin-Lafon, M. (2014). "SPad: a bimanual interaction technique for productivity applications on multi-touch tablets". In *CHI'14 Extended Abstracts on Human Factors in Computing Systems* (pp. 1879-1884).

In review/Submitted/In preparation

Foucault, C., Weber, L. A., & Hunt, L. T. (2025) "Environmental dynamics shape human learning: Change points versus random walks". In review at *eLife*.

Preprint: [biorxiv.org/content/10.1101/2025.11.26.690700](https://www.biorxiv.org/content/10.1101/2025.11.26.690700)

Greenhouse-Tucknott, A., **Foucault, C.**, Buot, A., & Meyniel, F. (2026). "Pupil Dynamics Reflect Uncertainty-Driven Adjustments of Probability Learning." In preparation.

POSTER PRESENTATIONS AT INTERNATIONAL CONFERENCES

Foucault, C., Weber, L. A., & Hunt, L. T. "Learning in dynamic environments through joint inference of mean and variance". *RLDM: Multi-disciplinary Conference on Reinforcement Learning and Decision Making* (Dublin, Ireland), June 2025.

Foucault, C., & Meyniel, F. "Two determinants of adaptability in learning magnitudes and probabilities". *Conference on Cognitive Computational Neuroscience* (Oxford, UK), August 2023. doi [conference abstract]: 2023.ccneuro.org/view_paper.php?PaperNum=1288

Foucault, C., & Meyniel, F. "Two determinants of adaptability in learning magnitudes and probabilities". *Symposium on Biology of Decision-Making* (Paris, France), June 2023.

Foucault, C.*, Bounmy, T.*, Demortain, S., Thirion, B., Eger, E., Meyniel, F. "A neural code for probabilities". *Conference on Cognitive Computational Neuroscience* (San Francisco, USA), August 2022. doi [conference abstract]: [10.32470/CCN.2022.1033-0](https://doi.org/10.32470/CCN.2022.1033-0)

Foucault, C., & Meyniel, F. "Learning to make Bayes-optimal predictions with recurrent neural networks" [Poster, Video, and Conference abstract]. *Bernstein Conference* (online), September 2020. doi [conference abstract]: [10.12751/nncn.bc2020.0101](https://doi.org/10.12751/nncn.bc2020.0101)

INVITED TALKS

Invited speaker at a laboratory seminar of the Motivation Brain Behavior group, Paris Brain Institute, Paris, France, February 2024. Title: "Neural representation of uncertainty and probability in learning".

Invited speaker at the laboratory seminar of Professor Laurence Hunt and Professor Jill X O'Reilly, Department of Experimental Psychology, University of Oxford, United Kingdom, November 2022. Title: "Learning and adapting in an unpredictable and changing environment".

Seminar on neural networks and how to characterize their function with Jean Daunizeau's team at the Motivation Brain Behavior group, Paris Brain Institute, Paris, France, September 2022.

Invited seminar speaker at the Parietal team, NeuroSpin, Inria-CEA, Gif/Yvette, & Université Paris-Saclay, France, February 2022.

Invited seminar speaker at the Halassa Lab (online), MIT Department of Brain and Cognitive Sciences, Cambridge, MA, USA, October 2021. Title: “Gated recurrence enables simple and accurate sequence prediction in stochastic, changing, and structured environments”.

TEACHING AND MENTORING

- 2025 – 2026 Co-supervisor, full-year MSci extended research project, *Oliver Grant* (MSci student, University of Oxford)
- 2025 – present Course tutor, “Experimental Design & Statistical Methods”, Department of Experimental Psychology, University of Oxford
- 2023 Co-supervisor, BSc summer research internship, *Yannaël Bossard* (final-year BSc student, ENS Rennes)
- 2021 – 2022 Teaching assistant, “Programming for Cognitive and Brain Sciences” CogMaster, ENS (graduate course; lectures+tutorials: 42h)
- 2020 – 2021 Teaching assistant, “Programming for Cognitive and Brain Sciences” CogMaster, ENS (graduate course; lectures+tutorials: 39h)

INSTITUTIONAL SERVICE

- 2026 – present Reviewing research ethics applications as a member of the Medical Sciences Interdivisional Research Ethics Committee, University of Oxford
- 2024 – present Member of the Early Career Researcher Committee in the Department of Experimental Psychology, University of Oxford
- 2024 – present Member of the People and Culture Committee in the Department of Experimental Psychology, University of Oxford
- 2022 – 2023 Weekly meeting organizer for the Computational Brain team at NeuroSpin (define agenda, date and time for the meeting, coordinate with speakers and attendees, send announcements, set up room/equipment, propose and schedule activities for upcoming meetings...).
- 2020 – 2023 Management of computer systems and devices for the Computational Brain team at NeuroSpin (research and purchase new equipment, track inventory, set up equipment for access to internal network and computing resources, provide instructions to facilitate team members’ use...)

SUMMER SCHOOLS

- 07-2024 (2 wks) Neuromatch Academy NeuroAI Summer School.
- 08-2021 (3 wks) Neuromatch Academy Deep Learning Summer School.
- 07-2020 (3 wks) Neuromatch Academy Computational Neuroscience Summer School.