

# Mary Letey

[email](#) + [website](#) + [scholar](#) + [github](#)

## Education

Sept 2023 – June 2028	<b>Harvard University</b>	PhD Candidate – <b>Applied Mathematics</b>
Sept 2022 – June 2023	<b>Perimeter Institute</b>	MSc – <b>Theoretical Physics</b>
Sept 2018 – June 2022	<b>University of Cambridge</b>	BA Honours – <b>Mathematics</b>

## Publications & Preprints

### **Pretrain–Test Task Alignment Governs Generalization in In-Context Learning**

[ICLR 2026](#)

‘What Can(’t) Transformers Do’ [Workshop, Neurips 2025](#)

**ML**, Zavatone-Veth, Lu, Pehlevan

### **Theory of Scaling Laws for In-Context Regression: Depth, Width, Context and Time**

[ICLR 2026](#)

Bordelon, **ML**, Pehlevan

### **Asymptotic theory of in–context learning by linear attention**

[Proceedings of the National Academy of Sciences \(2025\)](#)

‘Mathematics of Modern Machine Learning’ [Workshop, Neurips 2024](#)

Lu, **ML**, Zavatone-Veth, Maiti, Pehlevan

### **Quantum initial conditions for curved inflating universes**

[Physical Review D \(2024\)](#)

**ML**\*, Shumaylov\*, Agocs, Handley, Hobson, Lasenby

## Research & Work Experience

### **Hudson River Trading** – Winter 2026

Research Internship – Machine learning for market prediction

### **Quebec Artificial Intelligence Institute (MILA)** – Summer 2023

Research Internship – Equivariant architectures for neural PDE solvers

### **Perimeter Institute for Theoretical Physics** – 2022-2023

[Master’s thesis](#) – Classification of discrete symmetries in non-Euclidean space

### **Perimeter Institute Quantum Intelligence Lab** – Fall 2022

Graduate Rotation – Machine learning for quantum wavefunction prediction

### **Cavendish Laboratory & Kavli Institute for Cosmology, Cambridge** – Summer 2022

Research Internship – Research on early-universe cosmology and curved spacetimes

### **Embryo Ventures** – Summer 2020

Internship – Due diligence and founder outreach

### **Iguana Investments** – Fall 2019-Spring 2020

Research Internship – Market prediction models

## Awards & Funding

2025	<b>Graduate Fellowship</b>	Kempner Institute – Full support for graduate studies
2024	Clare Marie Doris Innovation Fund	Harvard University
2023	Graduate Prize Fellowship	Harvard University
	Summer Research Bursary	McGill University
2022	<b>International Scholar Award</b>	Perimeter Institute – Full support for MSc
	Summer Research Bursary	Royal Society