

EDUCATION

Ph.D., Stanford University

GPA 4.0/4.0

Management Science & Engineering, Ph.D. Minor Statistics

Sep 2012 – Jun 2016

- Dissertation: Deep Exploration via Randomized Value Functions
- **Advisor:** Benjamin Van Roy **Committee:** John Duchi, Ramesh Johari, Mykel Kochenderfer, Percy Liang
- **Awards:** Stanford Graduate Fellowship, Dantzig dissertation runner up (INFORMS national best Ph.D.).

Masters of Mathematics, Oxford University

First class

Graduated 1st of over 200 students in final examinations. Winner of the Gibbs prize.

Sep 2010 – Jun 2011

BA Hons Mathematics, Oxford University

First class

Graduated 1st in Applied Maths. Winner of Junior Maths, IMA and Jane Thornton prizes.

Sep 2007 – Jun 2010

WORK EXPERIENCE

OpenAI

San Francisco

Member of technical staff, Manager: Liam Fedus

Sep 2023 – present

Product-focused research and development. Efficient exploration and effective uncertainty estimates for ChatGPT.

DeepMind

London, San Francisco

Senior Staff Research Scientist, Manager: Benjamin Van Roy

Jul 2021 – Jun 2023

Rethinking uncertainty in deep learning with ENNs. Demonstration of ‘efficient agent’ IP with LLM agents.

Staff Research Scientist, Manager: Benjamin Van Roy

Dec 2019 – Jul 2021

Found and lead new research team around ‘efficient agent’ agenda with former Ph.D. advisor.

Senior Research Scientist, Manager: David Silver

Jun 2017 – Dec 2019

Ambitious, real-world projects in AI and decision making. Develop scalable approaches for efficient exploration

Research Scientist, Manager: Daan Wierstra

Jan 2015 – Jun 2017

Deep Exploration via Bootstrapped DQN. Algorithms behind DeepMind AI data centre cooling.

Google

Mountain View

Data science intern in Ads Metrics. Targeted shopping ads and long-term user effects.

Jun 2014 – Sep 2014

JPMorgan Chase

London, New York

Intern then analyst for credit derivatives trading and strategy. Quant and fundamental research.

Jun 2010 – Sep 2012

SELECTED PAPERS (GOOGLE SCHOLAR)

- **Epistemic Neural Networks** NeurIPS 2023 Spotlight
Scalable uncertainty in deep learning. Better performance than an ensemble of size=100 at cost <2 particles.
- **Deep Exploration via Randomized Value Functions** JMLR 2019
Computationally tractable approaches to statistically efficient reinforcement learning at scale.
- **Behaviour Suite for Reinforcement Learning** ICLR 2020 Spotlight
Methodical benchmark for the scaling properties of RL algorithms, with open source code.
- **A Tutorial on Thompson Sampling** FnT in ML 2020
A thoughtful tutorial around Thompson sampling to balance exploration with exploitation.
- **Reinforcement Learning, Bit by Bit** FnT in ML 2023
An elegant perspective on reinforcement learning through the lens of information theory.

OTHER

- **Captain of Swimming, Oxford University:** Full blues 2008-10. Three university records. National champs.
- **Captain of Graduate Rugby, Stanford University:** Lead MBA team to national champs. Olympic club squad.
- **Cross-Chanel Relay Swim, Eton College:** Youngest winning swimmer (14) and subject of BBC documentary.
- **Core skills:** clear thinking, determination, effective communication, leadership, teamwork, and fun.