

DEEPAK BADARINATH

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Research Experience

Statistical Machine Learning at the University of Oxford

Oct. 2022 – Oct. 2026

Doctoral Student

Oxford, United Kingdom

- PhD thesis title: Reinforcement Learning algorithms for airline revenue management and healthcare
- Design of interpretable offline reinforcement learning approaches for dynamic treatment regimes in healthcare, work done in collaboration with Prof. Sourush Saghaian from the Harvard Kennedy School

Fraunhofer Institute for Algorithms and Scientific Computing

Sep. 2021 – Sep. 2022

Student Research Assistant

Sankt Augustin, Germany

- *Master's thesis* student in the **Computational Finance** group. The goal of my thesis was to build an agent that optimizes portfolios in the energy and commodity markets. Built an agent that yields a profit when we have a battery that stores energy, a market to buy/sell energy from, and a grid to supply energy to.

Institute for Applied Mathematics

Aug. 2021 – Jan. 2022

Graduate Research Assistant

Bonn, Germany

- Obtained theoretical performance bounds for (un)adjusted Hamiltonian Monte Carlo (algorithms obtained after discretization of a stochastic differential equation) under special cases. Ran computational experiments to verify the performance of the algorithm with dimension and other parameters.

Education

PhD. in Modern Statistics and Statistical Machine Learning [PhD. StatML]

Oct. 2022 – Oct. 2026

University of Oxford

Oxford, United Kingdom

Master of Science [M.Sc. Mathematics]

Oct. 2019 – Aug. 2022

University of Bonn

Bonn, Germany

- Final grade: 1,8

Bachelor of Mathematics (Honours) [B.Math(Hons.)]

Jul. 2016 – May 2019

Indian Statistical Institute

Bangalore, India

- Aggregate percentage: 94.4%

Teaching Experience

Statistics Department

Jan. 2024 – March 2024, Oct. 2024 - Jan. 2025

University of Oxford

Oxford, United Kingdom

- Master's tutor: Advanced topics in statistical machine learning, Stochastic Processes

Honours

- **DAAD Stibet Partial Scholarship**, awarded from Aug. 2021 to Jan. 2022 to fund Master's thesis.
- **S.H.Aravind Gold Medal, first rank** holder in *B.Math(Hons.)* batch of 2016-2019.
- **Teacher's Prize**, 6 times in *B.Math(Hons.)*, awarded for top-3 students each semester.

Publications

- **Cost of interpretability: Blocked Value Iteration** - Presented at the Interpretable Policies Workshop at the Reinforcement Learning conference at RLC 2024.
- **Value Interpretable Dynamic Treatment Regimes** - Work in progress - We design a greedy model based interpretable approach to design optimal interpretable policies given by lists - tentative plan to publish at ICML '25 (top AI conference)

Software Skills

Python - Numpy, Scipy, Pandas, Matplotlib, L^AT_EX