

# AIDAN SCANNELL

## Machine Learning Researcher

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UK Driving Licence

Helsinki, Finland



*"Machine learning (ML) researcher with strong analytical skills and expertise in machine learning, reinforcement learning and robotics. Advocate of open-source software with a demonstrated track record of bringing ideas to life quickly and effectively through object-orientated and functional programming. Extensive knowledge of modern machine learning as well as hands-on experience solving real-world problems."*

## SKILLS

Python PyTorch JAX TensorFlow TensorFlow Probability GPflow GPyTorch GPy NumPy SciPy  
Pandas Docker Slurm W&B hydra Git/GitHub Sphinx LaTeX Linux Java C++ ROS

## EXPERIENCE

### Postdoctoral Researcher (with Prof. Joni Pajarinen & Prof. Arno Solin)

#### Aalto University | Finnish Center for Artificial Intelligence (FCAI)

July 2022 – Ongoing

Helsinki, Finland

Received two-year FCAI postdoc funding to sit jointly in the Robot Learning Lab and the Machine Learning Group.

- Experienced cross-disciplinary researcher demonstrated by synergising techniques from probabilistic machine learning, reinforcement learning and robotics.
- Leadership skills demonstrated by leading FCAI's "Long-term decision making and transfer between tasks" team.
- Good teamwork skills demonstrated through research collaborations.
- Strong programmer with extensive experience in Python machine learning (ML) libraries (PyTorch/JAX/TensorFlow).
- Experienced configuring and training large machine learning experiments on HPC clusters.
- Comfortable documenting code (Sphinx), writing unit tests, collaborating, and contributing to open-source code (GitHub).

Lecturing Supervision Reinforcement learning Bayesian deep learning Gaussian processes

### PhD Researcher (Supervisors: Prof. Arthur Richards & Prof. Carl Henrik Ek)

#### CDT in Future Autonomous and Robotic Systems, University of Bristol/Bristol Robotics Laboratory

Sept 2018 – Ongoing

Bristol, UK

Awarded a four-year PhD scholarship including a taught MRes year.

- Solid understanding of hardware and software systems for robotics.
- Hands-on experience and familiarity with robotic systems (e.g. quadcopters/manipulators).
- Effective communicator demonstrated through publications and invited talks.

Probabilistic modelling Gaussian processes Variational inference Riemannian geometry Robotics

### Co-lecturer & Lead Teaching Assistant @ Aalto University

Sept 2022 – Ongoing

Helsinki, Finland

- Co-lecturer on advanced course on Gaussian processes and lead teaching assistant for Reinforcement Learning course.
- Established myself as a confident, enthusiastic and effective teacher, able to engage and develop students' learning.

Lecturing Communication Active listening Teaching

### Teaching Assistant @ University of Bristol

Sept 2018 – May 2021

Bristol, UK

- Teaching assistant for (i) Machine Learning, (ii) Robotic Systems and (iii) Intelligent Information Systems courses.

## VOLUNTEERING

Finnish Center for Artificial Intelligence Team Lead - Long-term decision making and transfer between tasks

**Finnish Center for Artificial Intelligence (FCAI)**

📅 Sept 2022 - Ongoing 📍 Helsinki, Finland

- Lead a team of researchers working on reinforcement learning.
- Created an environment for researchers to form collaborations.
- Effective communicator demonstrated by weekly presentations.

Leadership

Communication

Teamwork Skills

Cohort Representative

**FARSCOPE CDT**

📅 Sept 2018 - May 2022 📍 Bristol, UK

- Represent myself and my CDT peers in management meetings.
- Communicate information between students and management.

Communication

Interpersonal Skills

## INVITED TALKS

Neural Networks as Sparse Gaussian Processes for Sequential Learning

**Int. Workshop of Intelligent Autonomous Learning Systems**

📅 15 Aug 2023 📍 Darmstädter Haus, Austria

Model based reinforcement learning under uncertainty

**ML at the Cambridge Computer Lab (ML@CL)**

📅 23 Feb 2023 📍 University of Cambridge

Synergising Bayesian Inference and Probabilistic Geometries for Robotic Control

**Cognitive Systems - Technical University of Denmark (DTU)**

📅 18 March 2021 📍 Zoom

Presentation skills

Communication

Outreach

## 👤 PUBLICATIONS

### 👤 Publications

- Aidan Scannell, Carl Henrik Ek, and Arthur Richards (Apr. 2023). "Mode-constrained Model-based Reinforcement Learning via Gaussian Processes". In: *AISTATS*. PMLR.
- Aidan Scannell, Riccardo Mereu, et al. (Oct. 2023a). *Function-space Parameterization of Neural Networks for Sequential Learning*.
- – (July 2023b). "Sparse Function-space Representation of Neural Networks". In: *ICML 2023 Workshop on Duality for Modern Machine Learning*.
- Aidan Scannell (2022). "Bayesian Learning for Control in Multi-modal Dynamical Systems". PhD thesis. University of Bristol.
- Aidan Scannell, Carl Henrik Ek, and Arthur Richards (June 2021). "Trajectory Optimisation in Learned Multimodal Dynamical Systems Via Latent-ODE Collocation". In: *ICRA*. IEEE.

## EDUCATION

PhD in Robotics and Autonomous Systems

**University of Bristol**

📅 Sept 2018 - June 2022

**PhD Thesis:**

- 📖 Bayesian Learning for Control in Multi-modal Dynamical Systems

**Taught MRes Year:**

- First class honours
- 📖 Extending BDI Agents to Model and Reason with Uncertainty

**Summer Schools:**

- Gaussian Process and Uncertainty Quantification Summer School 2019
- Machine Learning Summer School 2019

MEng in Mechanical Engineering

**University of Bristol | First Class Honours**

📅 Sept 2012 - June 2016

- Graduated in top 10% of cohort

## REVIEWING

- International Conference on Neural Information Processing Systems (NeurIPS)
- International Conference on Learning Representations (ICLR)
- International Conference on Artificial Intelligence and Statistics (AISTATS)
- Conference on Robot Learning (CoRL)
- International Conference on Robotics and Automation (ICRA)
- IEEE Transaction on Pattern Analysis and Machine Intelligence
- IEEE Robotics and Automation Letters (RA-L)

## REFERENCES

**Prof. Arno Solin**

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**Prof. Arthur Richards**

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