AIDAN SCANNELL

PhD Researcher

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aidanscannell | aidan-scannell-82522789/ | 22 April 1994 | UK Driving Licence

"I am an aspiring researcher with interests at the intersection of probabilistic machine learning and control theory. I am particularly interested in uncertainty quantification and as a result, a great deal of my work focuses on Bayesian non-parametric methods, specifically Gaussian processes and variational inference."

EXPERIENCE

PhD Researcher

University of Bristol

Sept 2018 – Ongoing | Bristol, UK

Researching methods for data-efficient learning and control in multimodal dynamical systems. EPSRC Centre for Doctoral Training in Future Autonomous and Robotic Systems (FARSCOPE).

Probabilistic modelling | Gaussian processes | Variational inference | Optimal control | Trajectory optimisation

Teaching Assistant

University of Bristol

Sept 2018 – Ongoing | Bristol, UK

Alongside my PhD I have assisted teaching:

- Machine Learning COMS30007
- Robotic Systems COMSM0012
- Intelligent Information Systems EMATM0042

Communication | Active listening | Teaching

PUBLICATIONS

Conference Proceedings

- Aidan Scannell, Carl Henrik Ek, and Arthur Richards (June 2021). "Trajectory Optimisation in Learned Multimodal Dynamical Systems Via Latent-ODE Collocation". In: Proceedings of the IEEE International Conference on Robotics and Automation. IEEE.

PROJECTS

Exploration of Operatable Dynamics Modes in Multimodal Dynamical Systems

University of Bristol

May 2021 - Ongoing | Bristol, UK

- Developing data-efficient techniques for exploration in multimodal dynamical systems.
- The goal of this project is to explore a single dynamics mode that is known to be operatable whilst avoiding other modes.

Bayesian optimisation | Gaussian processes | Optimal control

SKILLS

Python | TensorFlow | GPflow | JAX | NumPy | SciPy | Matplotlib | GPy

Java | C++ | MATLAB | ROS

Git/GitHub | LaTeX | Org-mode

EDUCATION

PhD in Bayesian Machine Learning for Robotic Control

University of Bristol

Sept 2018 - Ongoing

Gaussian Process and Uncertainty Quantification Summer School (GPSS)

University of Sheffield

Sept 2019 - Sept 2019

Machine Learning Summer School Moscow (MLSS)

Skoltech

Aug 2019 - Sept 2019

[1] MRes in Robotics & Autonomous Systems

University of Bristol | First Class Honours

Sept 2017 – Sept 2018

- Extending BDI Agents to Model and Reason with Uncertainty

MEng in Mechanical Engineering

University of Bristol | First Class Honours

Sept 2012 – June 2016

- Graduated in top 10% of cohort

[1] Awarded if PhD is not completed.

PROJECTS (CONT.)

Trajectory Optimisation in Learned Multimodal Dynamical Systems

University of Bristol

Sept 2019 - March 2021 | Bristol, UK

- Synergising Bayesian inference and Riemannian geometry to control multimodal dynamical systems.
- Finds trajectories that 1) remain in a desired dynamics mode, 2) avoid regions of the dynamics with high epistemic uncertainty.
- aidanscannell/trajectory-optimisation-in-learned-multimodal-dynamical-systems

JAX | Probabilistic geometries | Optimal control

Identifiable Mixtures of Sparse Variational Gaussian Process Experts

University of Bristol

Sept 2018 - Ongoing | Bristol, UK

- Improving identifiability and scalability in the Mixtures of Gaussian Process Experts model with GP-based gating networks.
- Variational inference based on sparse GP approximations.
- aidanscannell/mogpe

GPflow | TensorFlow | Gaussian processes | Variational inference

VOLUNTEERING

Cohort Representative

FARSCOPE CDT

Sept 2018 - Ongoing | Bristol, UK

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

Communication | Interpersonal Skills

Club Leader

Code Club

Dec 2017 - April 2018 | Junction 3 Library, Bristol , UK

- Set up (and then ran) a Code Club for children aged 9-13.
- Led the organisation, planning and teaching of weekly lessons.
- Planned lessons to engage children by making coding fun.
- Extremely rewarding and reinforced my love for teaching.

Leadership | Teaching | Communication | Active listening

INVITED TALKS

Synergising Bayesian Inference and Probabilistic Geometries for Robotic Control

Cognitive Systems - Technical University of Denmark (DTU)

18 March 2021 | Zoom

- Presented a method synergising Bayesian inference and probabilistic geometries to control multimodal dynamical systems.

Communication | Probabilistic geometries | Gaussian processes

ACHIEVEMENTS

Full Sporting Colours
Awarded full colours for outstanding achievements in snowboarding. Multiple gold medals in British University Snowboard Championships.

Starting To Teach
Established myself as a confident, enthusiastic and effective teacher who is able to engage, encourage and develop students' learning.

Bristol Plus Award
For undertaking a wide range of tasks to further enhance student skills - only 700 out of 23,000 achieved this award per annum.

Mary Jones Prize for Mathematics
For outstanding achievements in A Level mathematics @ Ripon Grammar School

The Duke of Edinburgh's Award
Bronze/Silver/Gold

REFERENCES

Prof. Arthur Richards
@ University of Bristol
arthur.richards@bristol.ac.uk

Dr. Carl Henrik Ek
@ University of Cambridge
che29@cam.ac.uk