Sahel Iqbal

sahel.iqbal@aalto.fi | GitHub° | LinkedIn° | sahel13.github.io°

Education

PhD Student in Electrical Engineering   Dec 2022 - Dec 2026 (Expected)
AALTO UNIVERSITY   Espoo, Finland

I am a second-year PhD student at Aalto University, working with Prof. Simo Särkkä. My primary research interests lie in probabilistic machine learning and computational Bayesian statistics, and specific areas that I currently work on as part of my PhD include:

- Bayesian experimental design.
- Reinforcement learning as probabilistic inference.
- Probabilistic numerical solvers for differential equations.

Integrated Master's in Physics   Aug 2017 - Jun 2022
NATIONAL INSTITUTE OF SCIENCE EDUCATION AND RESEARCH   Bhubaneswar, India

- Cumulative GPA: 9.07/10.

Selected Publications and Preprints

2024   **Sahel Iqbal**, Hany Abdulsamad, Sara Pérez-Vieites, Simo Särkkä, Adrien Corenflos (2024). Recursive nested filtering for efficient amortized Bayesian experimental design. NeurIPS Workshop on Bayesian Decision-making and Uncertainty.

   Sahel Iqbal, Adrien Corenflos, Simo Särkkä, Hany Abdulsamad (2024). Nesting particle filters for experimental design in dynamical systems. ICML.

   Sahel Iqbal, Hany Abdulsamad, Tripp Cator, Ulisses Braga-Neto, Simo Särkkä (2024). Parallel-in-time probabilistic solutions for time-dependent nonlinear partial differential equations. IEEE MLSP.

2023   Hany Abdulsamad, **Sahel Iqbal**, Adrien Corenflos, Simo Särkkä (2023). Risk-sensitive stochastic optimal control as Rao-Blackwellized Markovian score climbing. arXiv°.

   Sahel Iqbal, Subhankar Mishra (2023). Neural networks at a fraction with pruned quaternions. International Conference on Data Science & Management of Data.

Skills

PROGRAMMING LANGUAGES – Python, Julia, Haskell.

MACHINE LEARNING LIBRARIES – Proficient in JAX and the Julia ML stack (Flux, Zygote). Have used PyTorch and TensorFlow in the past.

MISCELLANEOUS – LaTeX, Bash, React.

Contributed and Invited Talks

Oct 21, 2024.	Contributed talk at the Nordic AI Meet in Helsinki, Finland.
Sep 25, 2024.	Invited talk at the RainML Research Lab at the University of Oxford, UK.
Jun 28, 2024.	Invited talk at the ELLIS Workshop on Probabilistic Numerics and Physics-Informed Learning in Helsinki, Finland.
Feb 16, 2024.	Invited talk at the Intelligent and Autonomous Systems research group at TU Darmstadt, Germany.

Teaching and Advising

| Spring 2024. | Teaching assistant for *ELEC-E8106, Bayesian Filtering and Smoothing* at Aalto University. |
| Spring 2024. | Advised a Master's thesis on "Physics-informed machine learning for mineral processing". |