

# Tom Savage

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- EDUCATION**
- PhD. *Data-Driven Discovery for Engineering Systems*, Imperial College London, 2021-...**
- Imperial College President's Scholarship (46 awarded across all disciplines).
  - Optimisation & Machine Learning for Process Systems Engineering Group.
- MPhil. *Chemical Engineering & Biotechnology*, University of Cambridge, 2020-2021**
- Fitzwilliam College John Dudding Masters Studentship (2 awarded across all disciplines).
  - Department of Chemical Engineering & Biotechnology, Computational Modelling Group.
  - Produced two first-author publications and passed viva with no corrections.
- BEng. *Chemical Engineering*, University of Manchester, 2017-2020**
- 78% GPA, 4<sup>th</sup> of approximately 80 students.
- ACADEMIC EXPERIENCE**
- PhD Enrichment Student, *The Alan Turing Institute*, 2023-2024**
- UK's National Institute for AI and Data Science.
  - 50 successful applicants nationwide across all disciplines.
- Graduate Teaching Assistant, *Imperial College London*, 2021-2024**
- 3<sup>rd</sup> year Undergraduate Lab 2021/2022/2023, Machine Learning in Chemical Engineering 2022, Reaction Engineering 2023, Design Project Aspen HYSYS Expert 2022.
- MSc Project Supervision, *Imperial College London*, 2021, 2022, 2023**
- Supervising projects involving data-driven optimisation and computational fluid dynamics.
- Summer Research Internship, *University of Manchester*, 2019**
- Applied machine learning to optimise LNG plant operating conditions.
  - Produced 2 conference papers and a first author publication.
- Summer Internship, *DNV GL*, 2016**
- Produced a report of onshore refinery emissions using atmospheric dispersion modelling.
- GENERAL EXPERIENCE**
- Cofounder, *Electronic Life*, 2024 - ...**
- AI & art collective founded alongside two established professors of art & design.
  - Creating installations, performing research and providing solutions concerning AI.
- Ministry of Justice / 10 Downing Street AI Project, *Apr 2024***
- Worked closely with lawyers and data scientists at the Ministry of Justice.
  - Furthest progressing non-civil servant at government competition.
  - Invited to Number 10 to present work on drafting new legislation using AI to cabinet ministers.
- Machine Learning & Design Consultant, *Tate / Winchester School of Art*, 2023 - ...**
- Contributing towards research proposals, events, and installations across the Tate Galleries.
  - Hosting workshops with charities and final year design students on machine learning.
  - Producing generative logos for the school that change in response to context.
- Computer Science Tutor, *Linacre Institute (Registered Charity 1156821)*, 2022 – ...**
- Helping talented but disadvantaged state-school students in the North of England gain access to education at leading universities such as Oxford, Cambridge, and Imperial.
- IChemE Student Representative, *University of Manchester*, 2019-2020.**
- President, *University of Manchester Darts Society*, 2019-2020**

## SELECTED

### PRESENTATIONS

#### **Saudi Aramco, 2024**

- Inaugural talk in the G-talk Futurize series. All 80,000 corporate employees invited.

#### **UK Government Department for Energy Security and Net Zero, 2024**

- *On Human-algorithm Collaboration, Engineering, and Writing Legislation using AI.*

#### **Winchester School of Art, Graphic Design, 2024**

- *Systems For Design, Machine Learning, and Engineering.*

#### **Lam Research, California 2024**

- *Human-Algorithm Collaborative Bayesian Optimization for Engineering Systems.*

#### **NeurIPS Workshop on Adaptive Experimental Design and Active Learning in the Real World, New Orleans 2023**

- *Expert-guided Bayesian Optimisation for Human-in-the-loop Experimental Design of Known Systems.*

#### **33rd European Symposium on Computer-Aided Process Engineering, Athens 2023**

- Accepted as a keynote presentation.

#### **NeurIPS Workshop on Gaussian Processes, Spatiotemporal Modeling, and Decision-making Systems, New Orleans 2022**

- *Deep Gaussian Process-based Multi-fidelity Bayesian Optimization for Simulated Chemical Reactors.*

#### **32nd European Conference on Operations Research, Helsinki 2022**

- *Robust Market Potential Assessment: Designing optimal policies for low-carbon technology adoption in an increasingly uncertain world.*

#### **Climate Exp0, COP26 Universities Network, 2021**

- *Knowledge-Graph-Based Digital Twin of the UK Gas Grid.*

#### **Lecture on Stochastic Optimisation, University of Manchester, 2019**

- For the core module 'Modelling and Optimisation', approximately 220 students.

#### **Centre for Process Integration Research Consortium, University of Manchester, 2019**

- First undergraduate to present to the industrial consortium in its 30-year history,

### AWARDS

#### **BASF Proposal Competition, 2024 - £200**

#### **BASF Poster Competition, 2023 - £250**

#### **President's Scholars Research Day Best Presentation, 2023**

#### **President's Scholars Research Day Best Poster, 2023**

#### **President's Scholars Research Day Best Poster, 2022**

#### **Imperial College President's Scholarship, 2021 - £82,000**

#### **Imperial College Masters Studentship (declined), 2021 - £6000**

#### **Fitzwilliam College John Dudding Masters Studentship, 2021 - £10,000**

#### **Best Individual Performance, Design Project, 2020 - £200**

#### **Ede & Ravenscroft Summer Internship Award, Highly Commended, 2019**

## SELECTED

### PUBLICATIONS

#### **Machine Learning-Assisted Discovery of Flow Reactor Designs**

- *Nature Chemical Engineering, 2024*

#### **Human-Algorithm Collaborative Bayesian Optimization for Engineering Systems**

- *Computers & Chemical Engineering, 2024*

#### **Universal Digital Twin – the Impact of Heat Pumps on Social Inequality**

- *Advances in Applied Energy, 2022*

#### **Universal Digital Twin: Integration of national-scale energy systems and climate data**

- *Data Centric Engineering, 2022*