



# Kostas Tsampourakis

Data Scientist

## 👤 Profile

Statistics PhD student with experience in statistical and mathematical modeling, machine learning, research, software development and technical writing. Seeking to obtain industry experience in data science and machine learning.

## Details

Edinburgh  
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## 📁 Employment History

### Doctoral Researcher at University of Edinburgh

September 2020 — December 2024

Development of novel methodology for Bayesian inference in complex dynamical systems. Proposed a novel framework which unifies classical algorithms to achieve improved accuracy and speed. Publish and present work in top peer-reviewed conferences. Contribute code to the [dynamax](#) package. Apply advanced Bayesian inference methods to analyze data from neuronal activity.

### Research placement at indigo.ai, remote (Milan)

March 2022 — May 2022

Exploring different approaches for intent detection in LLMs. Design experiments to test the textual entailment approach and implement the approach on a pre-trained BERT model, curate the appropriate datasets and fine-tune the models. Successfully address the research questions and inform the engineering team of the tradeoffs.

## Links

[website](#)  
[github](#)

## Skills

Python, JAX, Git, R,  
Bash, Matlab, Mathematica,  
Fortran, Latex

Statistical data analysis,  
machine learning, signal  
processing, numerics

Writing, communication,  
problem solving

## Languages

Greek

English

French

## 🎓 Education

### PhD in Statistics, University of Edinburgh

September 2020 — December 2024

Thesis: Bayesian inference of complex dynamical system

### MSc in Mathematics, Washington State University, Pullman

January 2018 — May 2020

### MSc in Theoretical Physics, University of Crete, Irákleio

September 2014 — September 2016

Graduated with honors. GPA 8.77/10

Thesis: Quantum trajectories in photosynthetic radical-pair reactions

### BSc In Physics, University of Crete, Irákleio

September 2008 — September 2014

GPA: 7.61/10

## ★ Publications

### A novel algorithm that unifies Gaussian and particle filters

Kostas Tsampourakis, Victor Elvira (2024), Under review

### **An augmented Gaussian sum filter through a mixture decomposition**

Kostas Tsampourakis, Víctor Elvira. *2023 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*.

### **Approximating the likelihood ratio in linear-Gaussian state-space models for change detection**

Kostas Tsampourakis, Víctor Elvira. *2022 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*.

### **Inference on the change point under a high dimensional covariance shift**

Abhishek Kaul, Hongjin Zhang, Kostas Tsampourakis, George Michailidis. *2023, Journal of Machine Learning Research, vol. 24*.

### **Quantum trajectory tests of radical-pair quantum dynamics in CIDNP measurements of photosynthetic reaction centers**

K. Tsampourakis, I.K. Kominis (2015). *Chemical Physics Letters* 640, 40-45

## **★ Teaching**

### **Bayesian theory**

Tutor, Fall 2021, University of Edinburgh.

Postgraduate course in Bayesian statistics.

### **Statistical Methodology**

Tutor, Fall 2021, University of Edinburgh.

Undergraduate course in likelihood-based statistics and computation.

### **Statistical Computing**

Tutor, Spring 2022, University of Edinburgh.

Undergraduate course, introduction to computational statistics in R.

### **Bayesian Data Analysis**

Tutor, Spring 2022, University of Edinburgh.

Postgraduate course, applying Bayesian analysis on various models and doing inference using BUGS/JAGS.

## **★ Awards**

### **Principal's Career Development Scholar, University of Edinburgh**

Full funding, 4 year PhD (2020-2024)

### **Best poster award**

[Bayes@CIRM 2023](#) Autumn school in Bayesian statistics.