

Ioannis Papageorgiou

Date of birth: 01/07/1996

Email: ip307@cam.ac.uk

Phone: +30 6973182404

Web: <https://www-sigproc.eng.cam.ac.uk/Main/IP307>

Signal Processing and Communications Laboratory

Engineering Department, University of Cambridge

Trumpington Street, Cambridge, CB2 1PZ

EDUCATION

University of Cambridge, **Ph.D. Information Engineering** Oct 2018 – June 2023
Thesis: *Time series modelling and inference with Bayesian Context Trees*
Supervisor: Ioannis Kontoyiannis

University of Cambridge, **M.Eng. Information Engineering** Oct 2017 – June 2018
Honours pass with Distinction, Institution of Civil Engineers Baker Prize
Project Title: *Active Reinforcement Learning*, Supervisor: Carl Rasmussen

University of Cambridge, **B.A. Information Engineering** Oct 2014 – June 2017
First Class Honours, Rank in year group: 2%

Athens-Psychico College, **High School Diploma** Oct 2008 – June 2014

SCHOLARSHIPS & FUNDING

St. John's College Postgraduate Scholarship April 2020 – Jan 2022
Tuition fees and maintenance costs

EPSRC DTP Studentship Award Oct 2018 – March 2020
Tuition fees and maintenance costs

ISTAT Foundation Scholarship Oct 2017 – June 2018
Tuition fees

Cambridge Bursary Oct 2014 – June 2018
Maintenance costs

National Scholarship Programme Oct 2014
Granted by the Isaac Newton Trust

AWARDS

Institution of Civil Engineers Baker Prize July 2018
Awarded by the Engineering Department for academic excellence

Townsend Scholarship Oct 2015 – Oct 2018
Awarded by St. John's College for academic excellence

College Prize, Wright Prize ($\times 2$), Cargill Prize, Cunningham Prize Oct 2015 – Oct 2018
Awarded by St. John's College for academic excellence

High Achiever Award Aug 2013
Highest subject mark in Europe for Edexcel GCE A-level Physics

PUBLICATIONS

Journal papers

- I. Kontoyiannis, L. Mertzanis, A. Panotopoulou, I. Papageorgiou, and M. Skoularidou. Bayesian Context Trees: Modelling and exact inference for discrete time series. *Journal of the Royal Statistical Society: Series B (Statistical Methodology)*, 84(4):1287–1323, 2022.
- I. Papageorgiou and I. Kontoyiannis. Posterior representations for Bayesian Context Trees: Sampling, estimation and convergence. *Bayesian Analysis*, to appear, 2023, doi: <https://doi.org/10.1214/23-BA1362>.

Preprints

- I. Papageorgiou and I. Kontoyiannis. Truly Bayesian Entropy Estimation. Submitted, *arXiv preprint arXiv:2212.06705*, 2022.
- I. Papageorgiou and I. Kontoyiannis. The Bayesian Context Trees State Space Model: Interpretable mixture models for time series. Submitted, *arXiv preprint arXiv:2106.03023*, 2022.
- V. Lungu, I. Papageorgiou, and I. Kontoyiannis. Change-point Detection and Segmentation of Discrete Data using Bayesian Context Trees. Submitted, *arXiv preprint arXiv:2203.04341*, 2022.

Conferences (papers/talks)

- I. Papageorgiou and I. Kontoyiannis. Context-tree weighting for real-valued time series: Bayesian inference with hierarchical mixture models. In *2023 IEEE International Symposium on Information Theory (ISIT)*, 2023.
- I. Papageorgiou and I. Kontoyiannis. The Posterior Distribution of Bayesian Context-Tree Models: Theory and Applications. In *2022 IEEE International Symposium on Information Theory (ISIT)*, pp. 702–707, 2022.
- I. Papageorgiou, I. Kontoyiannis, L. Mertzanis, A. Panotopoulou, and M. Skoularidou. Revisiting context-tree weighting for Bayesian inference. In *2021 IEEE International Symposium on Information Theory (ISIT)*, pp. 2906–2911, 2021.
- V. Lungu, I. Papageorgiou, and I. Kontoyiannis. Bayesian Change-Point Detection via Context-Tree Weighting. In *2022 IEEE Information Theory Workshop (ITW)*, pp. 125–130, 2022.
- “Exact Bayesian inference with effective time series models based on context trees”. **Plenary talk**. In *13th Workshop on Bayesian Inference in Stochastic Processes (BISP)*, Madrid, Spain, May 2023.
- “Modelling and inference for time series using Bayesian Context Trees”. In *Greek Stochastics μ'* , Corfu, Greece, August 2022.
- “Bayesian mixture models for time series based on context trees”. In *36th International Workshop on Statistical Modelling (IWSM)*, Trieste, Italy, July 2022.
- “Bayesian autoregressive mixture models based on context trees”. In *42nd International Symposium on Forecasting (ISF)*, Oxford, UK, July 2022.
- “Modelling and inference for discrete time-series using Bayesian Context Trees”. In *IMS Annual Meeting in Probability and Statistics*, London, UK, June 2022.

Software

- I. Papageorgiou, V. Lungu, and I. Kontoyiannis. R package BCT: “Bayesian Context Trees for Discrete Time Series.” Available at: <https://CRAN.R-project.org/package=BCT>, version 1.1, November 2020; version 1.2, May 2022.

Master’s thesis

- I. Papageorgiou. *Active Reinforcement Learning*. M.Eng. thesis, University of Cambridge, 2018.

PROFESSIONAL ACTIVITIES

- Reviewer, Journal of Machine Learning Research (JMLR)
- Reviewer, Statistics and Computing (STCO)
- Reviewer, Artificial Intelligence and Statistics (AISTATS)
- Reviewer, International Symposium on Information Theory (ISIT)

TEACHING ACTIVITIES

Supervisor, in third year courses of the Engineering Tripos

- Information Theory and Coding 2018–present
- Statistical Signal Processing 2018–2020

Demonstrator

- Data Analysis, a third year project of the Engineering Tripos 2019–2020

Marker

- Full Technical Reports (FTR) for the third year course Information Theory 2018–2022

PROGRAMMING SKILLS

C++, Python, R, MATLAB

LANGUAGES

Greek (native), English (fluent)

PERSONAL INFORMATION

Date of birth: 1 July 1996

Nationality: Greek

Email: ip307@cam.ac.uk, johnpapageorgiou96@gmail.com

Web: <https://www-sigproc.eng.cam.ac.uk/Main/IP307>

REFERENCES

Ioannis Kontoyiannis

Churchill Professor of Mathematics of Information

Department of Pure Mathematics and Mathematical Statistics (DPMMS), University of Cambridge

yiannis@maths.cam.ac.uk

Ramji Venkataramanan

Professor of Information Engineering

Department of Engineering, University of Cambridge

rv285@eng.cam.ac.uk