

Samuel **Davenport**

Work

Web

sjdavenport.github.io

2021-Present University of California San Diego - Postdoctoral research fellow

Working with Professor Armin Schwartzman developing theory to analyse

high-dimensional data with applications in brain imaging.

Git

github.com/ sidavenport 2021 University of Toulouse - Postdoctoral research fellow

Worked with Professors Pierre Neuvial and Bertrand Thirion on post-hoc selection in multidimensional linear models with applications to brain imaging

and transcriptomics.

Mail

sdavenport @health.ucsd.edu University of Oxford - Postdoctoral research fellow

Worked with Professor Thomas E. Nichols on statistical inference using Ran-

dom Field Theory.

Education

2020-2021

Born

24/03/1994

2016-2020 University of Oxford - DPhil in Statistics on the OxWaSP program

Supervised by Professors Thomas E. Nichols and Chris Holmes. During the PhD I worked on developing statistical methods for image analysis with applications in Neuroimaging, Astrophysics and beyond. Specializing in Random

Field Theory, Multiple Testing and Selective Inference.

Citizenship
British and German

2012-2016 University of Cambridge - BA and Masters in Mathematics

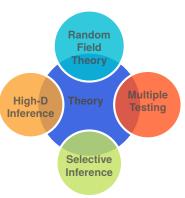
Distinction, coming 20th in the year out of 240 students and 1st in my college.

Thesis on Network Changepoint Detection in fMRI data.

Random 2010-2012 IB (International Baccalaureate) Diploma: 43/45 points

Higher Level Mathematics, Physics and Chemistry all 7 (highest mark).

Research Interests



Research Visits

10/19-10/19 KAUST - King Abdul Salman University of Science and Technology

I went to Saudi Arabia to visit Professor Hernando Ombao and give a talk on

clustersize inference using Random Field Theory.

07/19-08/19 **Technion - Israel Institute of Technology**

I visited Dr. David Azriel in Haifa, Israel to work on convolution random fields and peak detection with Dr. Fabian Telschow and Professor Armin Schwarz-

man.

01/19-03/19 University of California San Diego

I spent 2 months working with Professor Armin Schwarzman at UCSD. We worked on developing confidence regions for the locations of peaks in a ran-

dom field.



Research

Samuel Davenport, Bertrand Thirion and Pierre Neuvial. FDP control in multivariate linear models using the bootstrap, 2022. In submission.

Samuel Davenport, Thomas E. Nichols and Armin Schwartzman. Confidence regions for the location of peaks of smooth random fields, 2022. In submission.

Samuel Davenport and Fabian JE Telschow. On the finiteness of the second moment of the number of critical points of Gaussian random fields, 2022. In submission.

Fabian Telschow, **Samuel Davenport** and Armin Schwartzman. Functional delta residuals and applications to functional effect sizes, JMVA, 2022.

Samuel Davenport. Statistical Inference in fMRI using Random Field Theory and Resampling Methods, PhD Thesis, 2021.

Samuel Davenport and Thomas E. Nichols. The expected behaviour of random fields in high dimensions: contradictions in the results of Bansal and Peterson (2018), Magnetic Resonance Imaging, 2021.

Samuel Davenport and Thomas E. Nichols. Selective peak inference: Unbiased estimation of raw and standardized effect size at local maxima, NeuroImage, 2020.

Internships

07/16-08/16	Mercedes and the University of Cambridge I worked with the Mercedes Racing Team fitting mixed effects models to help understand tyre degradation.
06/15-07/15	STATSLAB - Department of Statistics at the University of Cambridge I worked with Professor Chris Rogers on a project that involved analyzing the distribution of financial time series and backtesting statistical trading strategies.
06/14-08/14	STATSLAB - Department of Statistics at the University of Cambridge I worked with Professor Nathanael Berestycki on analysis of the adjacent transposition shuffle.

Reviewing

Neuroimage, Journal of Computational and Graphical Statistics, Electronic Journal of Statistics, Human Brain Mapping, Psychometrika and Frontiers in Neuroscience

I have been a reviewer for these journals and in this capacity have reviewed a number of articles on Multiple Testing and Random Field Theory.

Acknowledged in

Blain et al 2022, Bowring et al 2019, Afyouni et al 2019, Teleschow and Schwartzman 2019, Sommerfield et al 2018

Awards

2016 King's College Cambridge - Part III Mathematics Prize

2011 Silver Medal - British Mathematics Olympiad

Came 29th out of around 1100 participants.

Other Interests

I dance competitively (Lindy Hop, Acrobatic Rock n Roll, Salsa and others) and play squash, tennis and ultimate frisbee. I also enjoy cooking and baking.