# THOMAS DELANEY

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## RESEARCH INTERESTS

Statistical modelling of large populations of neurons, particularly in response to stimuli
Statistical hierarchical models of the brain
Information theory in neuroscience
Machine learning models of sensory perception

## EDUCATION

**University of Bristol** Sept 2016 - Present
*Candidate for PhD, Computer Science* *Bristol, England*

· Biophysical modelling of in-vivo fluorescent calcium indicators.
· Statistical analysis of the activity of large populations of neurons, comparing functional clustering of neurons with their anatomical distribution.

**Online learning** Nov 2017 - Feb 2018
*Neural Networks for Machine Learning* *coursera.org*

· Course designed by Geoffrey Hinton, University of Toronto

**University of Edinburgh** Sept 2014 - Sept 2015
*MSc Informatics* *Edinburgh, Scotland*

· Thesis: How informative are retinal ganglion cell responses about visual stimuli?
· Overall Result: Distinction

**Trinity College Dublin** Sept 2007 - June 2011
*BA Mathematics* *Dublin, Ireland*

· Final Year Project: Quantum Topos Theory
· Overall Result: 1.1

## CONFERENCE PRESENTATIONS

**Neural Coding, Computation, and Dynamics** Capbreton, France
Poster: Comparing functional clustering to anatomical distribution *September, 2019*

**CNS** Barcelona, Spain
Poster: Comparing functional clustering to anatomical distribution *July, 2019*

**UK Neural computation** Nottingham, England
Poster: Comparing functional clustering to anatomical distribution *July, 2019*

**COSYNE** Denver, CO, USA
Poster: Calcium imaging model *March, 2018*

**BNA Festival of Neuroscience** Birmingham, England
Poster: Calcium imaging model *April, 2017*

## PROFESSIONAL EXPERIENCE

**University of Bristol** Sept 2016 - Present
*Teaching Assistant/Invigilator* *Bristol, England*

- Teaching Assistant for a variety of courses, Applied Statistics, Data Structures & Algorithms, Machine Learning, Computational Neuroscience, etc.
- Marking for Data Structures & Algorithms, Computational Neuroscience.
- Prepared workshop for prospective computer science students on university open day.
- Invigilated examinations.

**CheckRisk** June 2018 - September 2018
*Research Internship* *Bath, England*

- Internship at financial risk assessment company.
- Researched cutting-edge forecasting methods including statistical, machine learning and hybrid methods, including recurrent neural networks.
- Applied these methods to financial data to evaluate domain suitability.

**Edinburgh Airport Ltd.** Jan 2016 - Aug 2016
*Data Engineer* *Edinburgh, Scotland*

- Worked as a key member of the Airport's Digital team with a mandate to change every interaction with the airport using technology, data and innovation.
- Main responsibility involved taking in data available from around the business and extracting insights quickly and at low cost.
- Worked with teams such as Commercial, Security, Airfield, Forecasting and Planning to extract, transform and load data, making these datasets useful for these teams, and Edinburgh Airport's senior management.

**First Derivatives. Plc** June 2011 - Aug 2014
*Consultant Software Engineer* *Newry, Ireland*

- Worked as a software engineer on in-house projects, and as a consultant for different financial companies and institutions.
- Four months as kdb+ consultant in Morgan Stanley New York offices, working on the creation and upkeep of a large historical and real-time financial database.
- Four months as kdb+ consultant and team leader in off-shore development centre for Morgan Stanley.
- Seventeen months as kdb+ consultant in a highly responsible role in the London based hedge fund Marshall Wace Asset Management.
- Final three months in team-leader role utilising in-house software for performance reporting on First Derivatives FX trading platform.

**Trinity College Mathematics Dept.** May 2010 - Aug 2010
*Summer Intern* *Dublin, Ireland*

- Composed a project entitled 'The Historical and Mathematical Development of Maxwell's Equations'.
- Detailed the development of Maxwell's equations from a scientific and mathematical point of view.
- Attended weekly meetings with the project supervisor from the Mathematics Dept.
- Ensured part of this project would be suitable for use in the Classical Field theory or Classical Electrodynamics course in Trinity college.

## SCHOLARSHIPS & AWARDS

Bristol PhD studentship, funded by the EPSRC
University of Edinburgh Informatics UK/EU Master's Scholarship 2014/2015
Exemption from Senior Freshman Mathematics Final Exams, Trinity Foundation Scholarship exam results.

## TECHNICAL STRENGTHS

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|---|---|
| **Computer Languages** | Python, Julia, Matlab, Bash, q/kdb+, Java, c++, Batch Scripting, LaTeX |
| **Protocols & APIs** | FIX messaging protocol, Geneos monitoring API |
| **Databases** | kdb+, MySQL |
| **Tools** | git, SVN, Vim, crontab, Autosys, Eclipse, Scoop for Parallel Processing |

## ACHIEVEMENTS

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|---|---|
| **Academic** | Consistently excellent academic performance in a number well reputed of universities. |
| **Professional** | Working in Morgan Stanley within 3 months of finishing undergraduate degree. Maintaining a consistently high standard of work in every environment. |

## OTHER INTERESTS & SKILLS

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|---|---|
| **Spoken Languages** | English (fluent), Gaeilge (proficient), French (basic) |
| **Sport** | Weightlifting, Boxing, GAA (member of University of Edinburgh Gaelic Football Team), Soccer |
| **Reading** | Sport or Maths related non-fiction, Irish fiction, etc. |
| **Gambling Technology** | Using my coding and software knowledge to predict the outcomes of games and matches. |