Tristan Kalloniatis, PhD

Quantitative Researcher with high analytical skills from a pure maths postgraduate background. Keen interest in machine learning, natural language processing, and artificial intelligence research.

Education

2011–2016 **Mathematics (PhD)**, *King's College*, London.
Awarded April 2016 for thesis "On Flagged Framed Deformation Problems of Local Crystalline Galois Representations".

2010–2011 **Mathematics Tripos Part III (MA)**, *Queens' College*, Cambridge, *Distinction*.
Specialised in algebraic number theory and the theory of computation.

2007–2010 **Mathematics Tripos (BA)**, *Queens' College*, Cambridge, *First class honours*.
Several college prizes for top 10 rankings university-wide.

Accredited on 16 machine learning Coursera courses, including the University of Washington Machine Learning specialisation, achieving a 97% grade average. Content includes reinforcement learning, recurrent and convolutional neural network architectures, DCGAN, and natural language processing techniques.

Professional Experience

2016–present **Quantitative Researcher**, *G Research*, London.
Applying NLP and ML techniques as well as general coding, statistical modelling, and research skills to identify exploitable statistical patterns in global equity markets over medium horizons.
- Generated signal alpha worth a combined $20M per year.
- After extensive testing, 6 of my models reached production, in projects typically lasting for 5 months.
- Mentored new researchers, and reshaped the external recruitment process through the development of a novel case study on continuous blackjack, a team-based mathematical competitive coding challenge.

Technical Skills

My lifelong interest in mathematics and related quantitative fields has fostered both a capacity for quick logical reasoning and the ability to rapidly digest technical information and learn new skills.

Programming Python: data science/ML stack, especially PyTorch; C#; octave/MATLAB; Mathematica; SQL.

Research From working at G Research, my PhD experience, and my own projects, I have worked independently and broken large projects into smaller manageable pieces.
- NLP projects: implemented word embedding algorithms; sentiment classification for call transcripts with transfer learning and the IMDb benchmark dataset from scratch; machine translation with attention models.
- RL projects: comparing DQN and policy gradient methods on control tasks.
- Seminar talks on my individual research; paper presentations through the G Research NLP reading group and London Number Theory study group; undergraduate and private tuition.

Publications

2018 **On flagged framed deformation problems of local crystalline Galois representations**, *Journal of Number Theory*, `https://doi.org/10.1016/j.jnt.2018.11.010`.

2012 **Harmonic functions and the spectrum of the Laplacian on the Sierpinski carpet**, *Fractals*, `https://doi.org/10.1142/S0218348X13500023`.

Personal Interests

I speak French, and play keyboard at performance level. In my spare time, I have a strong interest in Rubik's cubes and related puzzles with a collection of around 150 exotic puzzles, and am passionate about powerlifting and squash.

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