(+44) 7715409997
tristan.kalloniatis@cantab.net
Tristan.Kalloniatis
TristanKalloniatis

Tristan Kalloniatis, PhD

Machine Learning Research Engineer from a pure maths postgraduate background with a focus on reinforcement learning, natural language processing, and AI research.

Professional Experience

2020–present **Staff Research Engineer**, *InstaDeep*, London.

Apply reinforcement learning to solve industry problems, particularly around combinatorial optimisation. Acquiring more responsibility over the course of my career progression from Research Engineer.

- Individual technical contributions to PCB design product, during which we went to market for individual and commercial use. Work across the RL stack: design agent objectives and inputs; implement model architectures and algorithmic improvements; identify simulation inefficiencies; evaluation; production and compute scaling. Collaborative work: within the team for RL and simulation; with other teams such as research and business development. Represent the product team in customer meetings and technical exhibitions.
- Technical lead on a commercial client project to develop, productionise, and scale up an RL system to improve margins. Lead for 8 months: directed development; crafted overall direction; acted as a bridge between the technical team and the client. As a result, the client invested further for us to continue development.
- Manage 6 direct reports working on 5 different projects: commercial client facing; product building; internal strategic projects. Leverage extensive knowledge and logical reasoning skills to provide technical guidance; quickly digest new technical information; manage career progression.
- Extensive involvement in recruitment through hiring; proactively redesigned the interview process to better assess candidates' technical skill sets.

2016–2020 **Quantitative Researcher**, *G Research*, London.

Apply NLP, ML, and statistical modelling to identify patterns in global equity markets over medium horizons.

- Generated signal alpha worth a combined $20M per year from 6 productionised models.
- Mentored new researchers; reshaped the external recruitment process through the development of a novel case study on "continuous blackjack", a team-based mathematical competitive coding challenge.

Education

2011–2016 **Mathematics (PhD)**, *King's College*, London.

Awarded for thesis "On Flagged Framed Deformation Problems of Local Crystalline Galois Representations".

2010–2011 **Mathematics Tripos Part III (MA)**, *Queens' College*, Cambridge, *Distinction*.

2007–2010 **Mathematics Tripos (BA)**, *Queens' College*, Cambridge, *First class honours*.

Skills

Programming Python: ML stack, especially JAX and PyTorch; distributed computing through ray; SQL; C#.

Research NLP: sentiment classification for call transcripts with transfer learning; attention models. Seminar talks on my individual research; paper presentations through company reading groups and London Number Theory study group; undergraduate and private tuition.

Mentorship For company outreach, designed and supervised an industry RL project for Masters students at Imperial College London. Gave a talk at KCL for maths graduate students looking to transition into ML.

Publications

2023 **Jumanji: a Diverse Suite of Scalable Reinforcement Learning Environments in JAX**, *ICLR*, (joint), `https://iclr.cc/virtual/2024/poster/19187`.

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*, (joint), `https://doi.org/10.1142/S0218348X13500023`.

Personal Interests

French; piano; squash. Strong interest in Rubik's cubes and related puzzles: a collection of around 150 exotic puzzles.