# Adam Gleave

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## Education

**University of California Berkeley**, PhD in Artificial Intelligence. 2017–
My research focuses on developing techniques necessary for advanced automated systems to verifiably act according to human preferences, even in situations unanticipated by their designer. I am supervised by Prof. Stuart Russell.

**University of Cambridge**, MPhil in Advanced Computer Science. 2015–2016
Graduated with **distinction** and awarded **Best Student Prize**, ranking **1st** out of 31 students.

My thesis, *A Modular Architecture for Unicode Text Compression*, was supervised by Prof. Zoubin Ghahramani and Dr. Christian Steinruecken. I argued for building compressors by composing probabilistic models, and extended the widely-used LZW and PPM compressors to allow composition with other models. Using Unicode as a case study, I developed a model based on Pólya trees that is well-suited to learning Unicode character distributions, and use this as a base layer for LZW and PPM. The resulting algorithms outperform the original LZW and PPM compressors by an average of 12.2% and 6.1% respectively over a Unicode text corpus. Furthermore, my variants perform no worse than the originals on ASCII texts and binary files. A paper based on this work has been accepted as a short publication at the Data Compression Conference.

**University of Cambridge**, BA (Hons) in Computer Science. 2012–2015
Graduated with **first class** degree. Awarded **Best Student Prize** in 2014, ranking **1st** out of 80 students, and in other years achieved a result in the top 10%. My thesis was supervised by Dr. Malte Schwarzkopf and Ionel Gog, and led to a publication at OSDI.

## Publications

**Adam Gleave** and Christian Steinruecken. "Making compression algorithms for Unicode text". In *Proceedings of the Data Compression Conference*, 2017.

Ionel Gog, Malte Schwarzkopf, **Adam Gleave**, Robert Watson and Steven Hand. "Firmament: fast, centralized cluster scheduling at scale". In *Proceedings of the USENIX Symposium on Operating Systems Development And Implementation (OSDI)*, 2016.

## Professional & Research Experience

**Junior Researcher**, GSA Capital. October 2016–August 2017
Independently creating new models of financial markets using techniques from statistics and machine learning. Development in Python, Java and Scala.

**Trading Intern**, Jane Street Capital. June–September 2015
Devised a model of the actions of other market makers, now used in production. Invented a new trading strategy that proved profitable in out-of-sample data.

**Developer Intern**, Jane Street Capital. June–September 2014

Developed components of automated trading systems with real-time constraints.

**Summer Intern**, Raspberry Pi. June–August 2013
Software engineering for the TAHMO project: a low-cost meteorological station.

**Mathematics Intern**, i2OWater. August 2012
Devised a non-parametric model of pressure loss in water utility networks.

**Infrastructure Developer**, AquaMW. January–May 2012
Freelance Python software engineering for green-tech startup during high school.

## Awards

**Winton Capital Best MPhil Student Prize**, University of Cambridge. 2016
Awarded for the best result in the MPhil in Advanced Computer Science.

**College Scholarship**, St John's College, University of Cambridge. 2015
Scholarship providing full tuition and living costs, awarded on academic merit.

**Hockin (Wright) Prize**, St John's College, University of Cambridge. 2015
Prize for performance in third year Computer Science examinations.

**G-Research Best Student Prize**, University of Cambridge. 2014
Awarded for the best result in second year Computer Science examinations.

**Leathem (Wright) Prize**, St John's College, University of Cambridge. 2013
Prize for performance in first year Mathematics examinations.

**Pythagoras Prize**, St John's College, University of Cambridge. 2012
Full tuition scholarship, awarded to one student per year for mathematical aptitude.

## Teaching Experience

**Mathematics Instructor**, St John's College, University of Cambridge. 2015
Gave an intensive two-day course to eight incoming undergraduate mathematicians.

**Classroom Assistant**, Raspberry Pi Foundation. 2013
Introduced high school students to Python programming in a daylong workshop.

## Additional Activities

**President**, 80,000 Hours, Cambridge University. 2015-2016
Led the largest student-run careers society, managing a team of ten people. We arranged talks and workshops for our 3,000 members, with attendance in excess of 250 at our most popular events.