# Rupert Horlick

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## Education

**2016 – 2017**

**MEng Computer Science**, *University of Cambridge*, Distinction (predicted).
Modules — Category Theory, Multicore Semantics & Programming, Advanced Functional Programming, A Mathematical Theory of Distributed Games and Strategies, and Interactive Formal Verification.

Masters Thesis — Formalised the theory of Generalised Species in Homotopy Type Theory (HoTT) using Agda. In HoTT, types have an $\infty$-groupoid structure, so we developed the theory for groupoids internally, rather than building a Category Theory library.

**2013 – 2016**

**BA (Hons) Computer Science**, *University of Cambridge*, 1 (81%, Rank: 8/81).
Dissertation — Built the Path ORAM cryptographic primitive in OCaml on MirageOS, to allow search over encrypted documents. I analysed the performance and security properties in the 10,000 word dissertation.

**2007 – 2012**

**Secondary Education**, *St. Paul's School*.
A-Level      Computing — A\*, Maths — A\*, Further Maths — A\*, Physics — A\*
AS-Level    Chemistry — A
GCSE        10 A\*s, 1 A

## Experience

**Summer 2016**

**Research Intern**, *Microsoft Research Cambridge*.
Worked under Simon Peyton-Jones on a project to add functions and rich data structures to Excel. I prototyped an interesting new data structure and prepared demos. The demos were presented to project managers in Redmond and were well received. I also worked on a refactoring project, which picked out common expressions in cells using anti-unification (a dual to unification), and extracted them into a new function.

**Summer 2015**

**Software Engineering Intern**, *Money&Co.*.
Automated a large Excel financial projection in Java, using object-oriented functors to handle dependencies between calculations. The software was deployed and is now used daily by a team of financial analysts.

**Summer 2014**

**Software Engineering Intern**, *Money&Co.*.
Rebuilt the company website from scratch using Bootstrap, HTML, jQuery, Less, and Java. I designed standards and templates to make the project maintainable and expandable.

## Other

**Technical Skills**
- Haskell, ML, and OCaml
- Java, C++, and C
- git, Octave, and LaTeX
- HTML, CSS, and Javascript

**Interests**
- CSIA Level 1 Ski Instructor
- Bouldering
- Mindfulness
- Anarchist Theory