Natalie Ravenhill

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Research Interests:

Programming Language Theory, particularly in semantics and type theory.

Education:

MSc Advanced Computer Science – University of Birmingham (2015-present):

(Fully funded by HEFCE Postgraduate Support Scheme)
(Predicted Merit)
Modules including: Research Skills, Secure Programming, and Computer Aided Verification.

BSc Computer Science – University of Birmingham (2012-2015):

2:1 (68%)
Modules included: (Advanced) Functional Programming, Models of Computation, Principles of Programming Languages, Foundations of Computer Science and Reasoning.

King Edward VI Camp Hill School for Girls (2005-2012):
A levels including Maths, Computing and Further Maths (AS)
GCSEs including Maths (A*) and English Language (A)

Projects and Dissertations:

Mini Project (completed April 2016): *Formalising Semantics of Programming Languages*
Formalising the operational and denotational semantics of a small imperative language, in a proof assistant (Agda)

Mini Project (completed January 2016): *Separation Logic*
Completed separation logic proofs on simple data structures and used some common software tools based on Separation Logic to check the proofs.

Final Year Project (completed April 2015): *The Coalgebraic Interpretation of Brzozowski's Minimisation Algorithm*
Studying the proof of Brzozowski's automata minimization algorithm given coalgebraically and explaining the category theoretic and algebraic concepts behind it.

Individual Study (completed December 2014): *Martin Löf Type Theory, Homotopy Type Theory and Agda*
Studying Martin Löf (Intuitionistic) Type Theory, the (intuitionistic) logic behind it and the Homotopy Type Theory built on it and formalizing some of the concepts of it in the theorem prover / programming language Agda.

Teaching:

Functional Programming Demonstrator (2014 - 2015):
Gave one to one help to 2nd year students, who took the Functional Programming module, in their lab sessions with understanding assignments, debugging their code and issues they had with the Haskell language.

PASS (Peer Assisted Study Session) leader (2013 – 2014):
Work with a team of 3 other leaders to conduct 50 minute sessions to a small group of 1st year students to get them to work through sample problems for Java and OCaml programming modules and propositional/predicate logic problems for Language and Logic, enabling them to help each other with their understanding of the course material.

Positions of Responsibility:

STEMNET Ambassador (October 2015 – present):

- Assist schools and communities with promoting STEM subjects to school pupils
- Worked in a team to supervise and deliver a day long engineering enterprise workshop for Year 5 pupils
- Taught ICT lessons to Year 8 – 11 pupils in a local secondary school

Treasurer of Computer Science Society (CSS) (March 2014 – March 2015)

- Managed accounts of a departmental society with around 80 members and ensure money is spent within the members' best interests
- Liaise with other committee members to organize and run events

Awards/Scholarships:

- **Birmingham Masters Support Scheme Scholarship** recipient, as part of HEFCE Postgraduate Support Scheme 2015-16, provided full funding for Masters degree.
- **Programming Languages Mentoring Workshop Scholarship** to attend the 2016 ACM Symposium on Principles of Programming Languages (**POPL**) conference

Work Experience:

- **Junior Delivery Management Intern** at ***Capgemini*** **(June 2015 – July 2015):**
- **Learning Centre Reception Assistant** at ***University of Birmingham*** **(June 2014 – June 2015):**
- **Capgemini Community Challenge** at ***Capgemini*** **(June 2014):**

References

Available on request.