Troy Kaighin Astarte

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Researcher with background in formal methods and history of computing.

Education

PhD in Computing Science
Newcastle University, 2015–2018
'Formalising meaning: a history of programming language semantics'.
Supervisor: Cliff Jones; extended advisory panel: Brian Randell, Martin Campbell-Kelly, John Tucker. Commenced September 2015, planned submission December 2018.

BSc Computer Science with Industrial Placement
Newcastle University, 2012–2015
Award: first class degree with honours (final mark: 80%).

Earlier education at Lancaster & Morecambe College and Lancaster Royal Grammar School.

Research

Conferences

I have attended and presented papers at the following venues:

- European Society for the History of Science Biennial Conference, September 2018, London

- British Society for the History of Mathematics Research in Progress, February 2018 & February 2017, Oxford

- PLASMA Seminar, November 2017, York (invited department talk)

- History and Philosophy of Computing, October 2017, Brno

- History and Philosophy of Programming, June 2016, Paris

I have also attended a number of other events in my wider field of interest, including:

- York Doctoral Symposium in Computing

- Ada Lovelace Symposium in Oxford

- Northern Concurrency meetings

- British Computer Society, Formal Aspects of Computing talks

- Oxford History of Mathematics Forum

- Computer Conservation Society meetings

- British Society for the History of Mathematics conferences

- PROGRAMme launch workshop, Bertinoro, Italy

Training

Introduction to Oral History Oral History Society, May 2016.
Methods for interviewing, use of equipment, handling copyright, etc.

Post-graduate researcher development program Newcastle University, 2015–2017.
A number of short courses including research skills and effective reading methods, academic writing, funding and financing, and university organisation.

Publications

Formal Semantics of ALGOL 60: Four Descriptions in their Historical Context [AJ18]
This 70+ page paper takes both a historical and technical look in depth at four complex semantic documents. Conclusions are drawn about the application of different semantic techniques and how they are affected by the context in which they were written.

Challenges for semantic description: comparing responses from the main approaches [JA18]
This is a technical paper looking at the main difficulties in programming languages and how they can be modelled in different semantic frameworks.

Both are also published as Newcastle Technical Reports, [JA16] and [JA17] respectively.

[AJ18]   Troy K. Astarte and Cliff B. Jones. "Formal Semantics of ALGOL 60: Four Descriptions in their Historical Context". In: *Reflections on Programming Systems - Historical and Philosophical Aspects*. Ed. by Liesbeth De Mol and Giuseppe Primiero. In press. Springer Philosophical Studies Series, 2018, pp. 71–141.

[JA16]   Cliff B. Jones and Troy K. Astarte. *An Exegesis of Four Formal Descriptions of ALGOL 60*. Technical Report CS-TR-1498. Newcastle University School of Computer Science, 2016.

[JA17]   Cliff B. Jones and Troy K. Astarte. *Challenges for semantic description: comparing responses from the main approaches*. Technical Report CS-TR-1516. Newcastle University School of Computer Science, 2017.

[JA18]   Cliff B. Jones and Troy K. Astarte. "Challenges for semantic description: comparing responses from the main approaches". In: *Proceedings of the 3rd School on Engineering Trustworthy Software Systems*. Ed. by Jonathan P. Bowen and Zhiming Liu. Lecture Notes in Computer Science 11174. 2018, pp. 176–217.

Employment

Teaching Assistant, Universiteit van Amsterdam, January 2018
Worked supervising students through a one-month research and writing project on the Masters level 'History of Digital Cultures' course.

Analyst, Accenture, 2013–2014
Placement during undergraduate degree. Responsibility included project management, financial planning, and identifying potential clients.

Research assistant, Newcastle University, Summer 2013
Project concerned developing effective power consumption monitoring techniques.

Web designer, Advance With Media, Summer 2012 Developing websites for small business clients using cutting-edge web technologies.

Teaching

Training
Two stages of Newcastle University's *Introduction to Learning and Teaching in Higher Education* completed, meeting pre-requisites for CASAP.

Demonstrator experience
Three years' experience, including the following modules:

Stage 1 mathematics, web design, professional development

Stage 2 software engineering, formal modelling with VDM, algorithm design and analysis

Stage 3 server-side web technologies, formal modelling of concurrency, computer security, software verification technologies and formal proof, understanding (semantics of) programming languages

MSc using Linux, history of digital cultures

Marking experience
For all the above modules, including as sole marker and as part of a team, as well as some others including team projects. Assignments marked have included programs, mathematical exercises, presentations, and essays.

Module leadership and lecturing experience
Lectured on understanding programming languages course. I also had involvement in the development and grading of assignments. Scheduled to begin teaching on the course in February 2019.

Other experience

Webmaster, British Society for the History of Mathematics, 2019–
Member of council as well as specialist role as webmaster.

Member, PROGRAMme research group
This is a 'virtual research group' sponsored by the French ANR which takes a historical and philosophical look at programming.

PGRDP board, Newcastle University, 2015–2017
Duties included working with student feedback and helping develop an effective programme of workshops. Also provided insight into university structure.

Conference organiser, 2016
Arranged Strachey 100 conference in Oxford, November 2016. Handled communication and organisation with speakers, publicising of event, creation of conference booklet, and organising archive display event.

Student governor, Lancaster and Morecambe College, 2009–2011
Represented student body on the board of governors and assisted in college strategic direction.

Shop assistant (voluntary), Barnardo's Lancaster, 2007–2009
Duties included till work and stock management.