Jonathan Beaumont: Curriculum Vitae

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Education

2014 – Present, PhD Computer Engineering, Newcastle University

Research interests:

- Asynchronous circuit design methods
- Development of software tools for hardware design automation
- Process mining and concurrency extraction from event logs

Projects:

- My PhD research project is the development of a domain-specific language for formal specification of asynchronous circuits [1][4]. This has provided me with knowledge of asynchronous systems, design methods, verification properties and synthesis, and an understanding of several forms of graphical modelling methods, such as Finite State Machines, Petri Nets, Signal Transition Graphs and Conditional Partial Order Graphs.
- FANTASI project: accelerating network analysis on FPGAs (1000x over conventional PC cluster) and developing a framework for end-users at the drug discovery company e-Therapeutics to analyse biological networks using this acceleration, without needing to know the intricacies of the architecture.
- I work as part of a software development team on several software tools. One such tool I have developed is *Plato* [2]. This is written in Haskell and implements features of my research project (github.com/tuura/plato). Another tool I have aided the development of is *pgminer* [3], a Haskell library for process mining (github.com/tuura/process-mining). These tools are integrated into *Workcraft* as plugins, the main tool developed by this team (workcraft.org).

2010 – 2014, First class honours, Electronic and Computer Engineering MEng, Newcastle University

Publications – all available from jrbeaumont.github.io/publications

Conference papers:
[1] J. Beaumont, A. Mokhov, D. Sokolov and A. Yakovlev, "Compositional design of asynchronous circuits from behavioural concepts," *2015 ACM/IEEE International Conference on Formal Methods and Models for Codesign (MEMOCODE)* doi: 10.1109/MEMCOD.2015.7340478
[2] J. Beaumont, "Plato: a tool for behavioural specification of asynchronous circuits", International Conference on Application of Concurrency to System Design (ACSD 2017), accepted and in press. View at: https://jrbeaumont.github.io/papers/plato-acsd2017.pdf

Book chapters:
[3] A. Mokhov, J. Carmona, J. Beaumont. "Mining Conditional Partial Order Graphs from Event Logs", M. Koutny, J. Desel, J. Kleijn (Eds.): Transactions on Petri Nets and Other Models of Concurrency XI in Lecture Notes in Computer Science, vol. 9930, pp. 114-136, Springer, 2016. doi: 10.1007/978-3-662-53401-4_6

Journal articles:
[4] J. Beaumont, A. Mokhov, D. Sokolov, A. Yakovlev. "High-level asynchronous concepts at the interface between analogue and digital worlds", IEEE Transactions on Computer-Aided Design, Special Issue on Circuit and System Design Automation for Internet of Things, accepted and in press. doi: 10.1109/TCAD.2017.2748002