Huon Wilson – Résumé

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Academic

2011–2014	**Bachelor of Science (Advanced Mathematics) (Honours)**, *University of Sydney, Australia* First class honours, majoring in both Mathematics and Statistics with a High Distinction in every course. Thesis: *Computing socles of finite permutation groups with degree $n \leq 10^7$*.
2012, Semester 2	**Academic Exchange**, *Uppsala University, Sweden*
2015–2016	**Masters of Science (Statistics)**, *University of Sydney, Australia* Thesis: *Computing fast and accurate convolutions*.

Publications

Wilson, H., & Keich, U. (2016). Accurate pairwise convolutions of non-negative vectors via FFT. *Computational Statistics & Data Analysis*, *101*, 300–315.

Wilson, H., & Keich, U. (2017). Accurate small tail probabilities of sums of iid lattice-valued random variables via FFT. *Journal of Computational and Graphical Statistics*, *26*(1), 223–229.

Experience

2018–present; CSIRO's Data61 I am on the StellarGraph project. On the distributed platform for graph machine learning, I implemented (and spoke about) the flexible PSig algorithm for entity resolution at scale, and worked prolifically across the whole codebase from taking initiative with user-focused planning to force-multiplying DevOps work. On the open source Python library for graph machine learning, I used TensorFlow to implement modern deep learning algorithms for working with knowledge graphs. I also performed key optimisations to foundational infrastructure and further DevOps work, as well as user-focused documentation and community building.

2016–2018; Apple I was on the Swift compiler team. My code contributions to the large, modern C++ code-base included key additions to the generics model, such as conditional conformances, and where clauses on protocols & associated types—both announced to appreciative audiences at WWDC17 and WWDC18 respectively—as well as functionality for tracking binary dependencies and understanding the ABI of a module, needed for both integration with build systems and ABI stability. I was also involved in the language design.

2012–2016; Rust & Mozilla I was a member of the core team of the Rust programming language for one and a half years, as the later half of nearly three years of regular and numerous

contributions to the compiler and standard library as well as design work for the language and standard library. I interned with Mozilla Research during the summer of 2015, working on data parallelism via SIMD (Single-Instruction, Multiple-Data).

2012; Federations Bells, Melbourne I designed and implemented both a monitoring system and a physical simulation for design purposes for the 39-piece Federation Bells public art installation in Melbourne, Australia as part of its refresh in April 2012. The monitoring system is still used daily to ensure the health of the bells, and includes interfacing a large and highly concurrent Python program with audio drivers and a database, as well as performing novel audio capture and signal processing to detect bell chimes in a noisy outdoor environment. The physical simulation used data about the bells to construct waveforms that drive their clappers to strike with different volumes. http://federationbells.com.au

Technologies

I enjoy learning new programming languages and technologies. I have a lot of experience with the following languages and technologies, which I have used for large tasks:

- Rust
- Swift
- C++
- Scala
- Python
- C
- Assembly, most experience in reading rather than writing
- Haskell
- R
- Javascript
- Unix shell and common utilities
- Mark-up and formatting tools like HTML/CSS and LaTeX
- SQL, largely SQLite and PostgreSQL
- Big-data technologies like Apache Spark, Apache HBase and Elasticsearch

These are languages or technologies that I am familiar with and have used for smaller tasks:

- GPGPU programming via CUDA
- Java
- Julia
- Lisps such as Clojure and Emacs Lisp
- PHP
- Ruby

Awards, Prizes and Recognition

I was invited to attend the National Mathematics Summer School in 2010, and was selected and returned as one of the dozen members of the "Experienced Group" in 2011.

Some of the scholarships and prizes I received at the University of Sydney:

- Faculty of Science Dean's List of Excellence (2011, 2012, 2013)
- Tim Brown Prize No. II (for statistics) (2013)
- International Exchange Scholarship (2012)
- AMSI Research Scholar (2013–2014 summer).

Referees

Available on request.