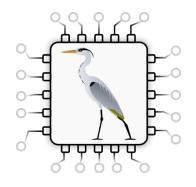
HAFDAL 2024

Hardware Acceleration of Functional and Declarative Languages Workshop

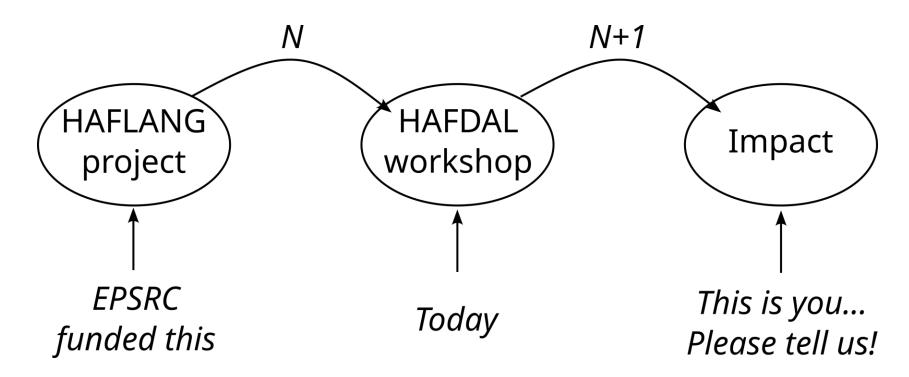




HAFLANG



- Workshop supported by EPSRC HAFLANG project
 - o Goal: design a processor specifically for functional languages
 - o https://haflang.github.io
 - More from Craig later...
- Goal of this workshop: bring together computer architects and PL implementers to share ideas for software/hardware co-designs of high-level languages
- Please join the "Computer Architectures for Functional Programming languages" mailing list
 - o https://groups.google.com/g/cafp



We need to report back to our funder (EPSRC) about impact

- What do attendees do after this workshop?
- Did you meet a *future collaborator* at this workshop?
- Did you get funding for a grant based on what you learned today
- Did you **start a PhD** inspired from a talk today
- Please keep in touch and let us know!

Historic context

In September 1981, the first conference on Functional Programming Languages and Computer Architecture (FPCA)—note the title!—took place in Portsmouth, New Hampshire. Here Turner gave his influential paper on "The semantic elegance of applicative languages" (Turner, 1981). (Wadler also presented his first conference paper.) FPCA became a key biennial conference in the field.

(In 1996, FPCA merged with LFP to become the annual International Conference on Functional Programming, ICFP, which remains the key conference in the field to the present day.)

FPCA + LFP = ICFP

The Functional Programming Languages and Computer Architecture (FPCA) conference series ran 1981-1995. There was also a dedicated workshop in 1986, "Graph Reduction" in Santa Fé, New Mexico, USA. In 1996, FPCA merged with Lisp and Functional Programming (LFP) to become the International Conference on Functional Programming (ICFP), which remains a premier functional programming conference today. In the last decade, papers accepted to ICFP predominately focus on formalised language design and type theory, rather than engineered hardware systems.



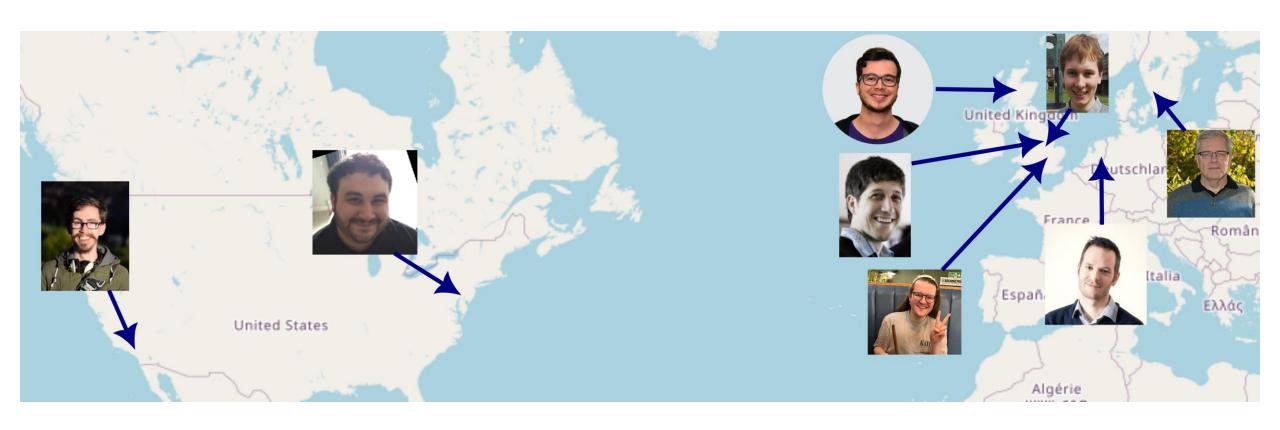
The end of FPCA and LFP marked the end of an era for functional language hardware in the 1980s. Researchers would later reflect that most functional hardware efforts led to dead ends.



https://haflang.github.io/history.html



Workshop speakers



Workshop schedule

- 13:35 Carl-Johan Seger, Chalmers University of Technology
- 14:05 Craig Roy, Quantinuum
- 14:35 Sam Ainsworth, consultant and University of Edinburgh
- 15:05 Julian Kemmerer, Deepwave Digital
- 15:20 Coffee
- 15:40 Christiaan Baaij, QBayLogic
- 16:10 Craig Ramsay, Heriot-Watt University
- 16:40 Martin Trefzer, University of York
- 17:10 Jonathan Balkind, UC Santa Barbara
- 17:40 Closing remarks
- 18:00 HPCA welcome reception
- 19:00 Pub