Philip Reames

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Objective

Experienced software engineer with technical lead and management experience seeking full time role working on compilers or other hard technical challenges. Currently based in the Bay Area, but would consider relocation to Southern California.

Relevant Experience

Technical Lead & Manager, Falcon (LLVM) Team, Azul Systems Inc 2013-Present

- Over the last four years, our team has developed a new just-in-time compiler for the Zing VM codenamed Falcon. We shipped the general availability build of Falcon in December 2016 and enabled Falcon by default in April 2017. Falcon is a LLVM based compiler. Information on some of the extensions we made to LLVM to support optimizing java bytecode semantics can be found in the following public talks:
  - Supporting Precise Relocating Garbage Collection in LLVM
    Sanjoy Das and Philip Reames. 2014 LLVM Developers Meeting
  - LLVM for a managed language: what we've learned
    Sanjoy Das and Philip Reames. 2015 LLVM Developers Meeting
  - Expressing high level optimizations within LLVM
    Artur Pilipenko. 2017 European LLVM Developers Meeting.
- I currently manage the seven person team responsible for continued development of the Falcon compiler. We also share responsibility for the broader compiler infrastructure and tiering system. In this role, I am responsible for all of Azul's LLVM development efforts and manage our relationship with the LLVM open source community.
- Before transitioning into a management role in April 2016, I was the technical lead for the initial development team. I was heavily involved in the design and implementation of what would become the Falcon compiler. As part of this effort, I have contributed heavily to the LLVM open source project.

Graduate Student Researcher University of California Berkeley 2011-2013

- I was advised by Professor George Necula and was part of the Parallel Computing Laboratory. My projects focused around intersections between native and managed languages – in particular, runtime support for low level code in a partially managed environment. In addition to the publications below, I spent time working on event based systems, cross language compiler optimizations, and program synthesis.

Research Intern National Instruments, Austin, TX Summer 2012

- I worked with co-founder, and NI Business and Technology Fellow Jeff Kodosky, to investigate language and compiler changes to support 3rd party extensions of LabView programming environment. Target extensions included dynamic instrumentation and hybrid (mixed static/dynamic) error checkers.

Senior Software Engineer FactSet Research Systems Inc 2007-2011

- At FactSet, I started as a software engineer, and then moved into a technical lead role. As a Senior Software Engineer, I contributed code on a regular basis for my product responsibilities and across the company's core infrastructure. My primary responsibility was for the Portfolio Publisher product, but I also contributed to related product lines. I joined shortly after Portfolio Publisher was launched and was part of the team that grew the product line from a few tens of thousands to several million dollars in ASV.
- I spent my last 18 months at FactSet as a manager with slowly increasing responsibility. At the point I left, I was managing a team of six full-time engineers and two interns.

Education

Masters of Science, Computer Science and Electrical Engineering,
University of California Berkeley, May 2013

Bachelor of Science, Computer Science with International Minor in Japanese Studies.
University of Illinois Urbana-Champaign. May 2007

Publications

Philip Reames, George Necula. Towards Hinted Collection: Annotations for decreasing garbage collector pause times. *International Symposium on Memory Management 2013*, Seattle, WA, June 2013

Philip Reames. Hinted Collection. *Master's Thesis, UC Berkeley*, May 2013

Martin Maas, Philip Reames, Jeffrey Morlan, Krste Asanovic, Anthony D. Joseph, John Kubiatowicz. GPUs as an Opportunity for Offloading Garbage Collection. *International Symposium on Memory Management 2012*, Beijing, China, June 2012

Francis M. David, Jeffrey C. Carlyle, Ellick M. Chan, Philip A. Reames, Roy H. Campbell. Improving Dependability by Revisiting Operating System Design. *Proceedings of the 3rd Workshop on Hot Topics in Dependability*, June 2007

Rishi Bhardwaj, Phillip Reames, Russell Greenspan, Vijay Srinivas Nori, Ercan Ucan. A Choices Hypervisor on the ARM Architecture. *Technical Report, UIUC*, April 2006

Philip Reames, Ellick Chan, Francis David, Jeffrey Carlyle, Roy Campbell. A Hypervisor for Embedded Computing. *Illinois Journal for Undergraduate Research*; Spring 2007

Skills

Currently, my core languages of choice are C++ & Python. I have previous experience (at various levels of expertise) with several assembly languages, shell scripting languages, hardware description languages, and functional programming languages. Picking up a new language or tool is generally not a challenge.

I am knowledgeable of compiler optimization and design. I have contributed heavily to the LLVM mid-level optimizer. I have less experience with backend specific optimizations and language frontends.

I have implemented reliability mechanisms such as checkpoint-and-restart in a batch production environments. I have implemented the core of an operating system from scratch and have implemented parallel mark/sweep garbage collectors for both CPUs and GPUs.

I have experience (academic, practical, or both) with several frameworks for parallel programming including MPI, OpenMP, OpenCL, PThreads, and Futures.

Notes

You may find my GitHub and LinkedIn profiles relevant. You are welcome to contact me directly with any questions.

The most recent version of this document can always be found at:
http://www.philipreames.com/resume.pdf

References available on request.