Pranav Bhandarkar

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EDUCATION

UNIV. OF TEXAS AT AUSTIN
MS in Computer Science
Dec 2010 | Austin, TX

UNIVERSITY OF PUNE
BE in Computer Science
May 2005 | Pune, India

LINKS

Github:// **pranavb-ca**
LinkedIn:// **pranavbhandarkar**

COURSEWORK

GRADUATE
Advanced Compiler Construction
Parallel Programming
Distributed Computing
Advanced C++

UNDERGRADUATE
Datastructures
Theory of Computer Science
Principles of Programming Languages
Compiler Construction
Unix Programming

SKILLS

PROGRAMMING
C • C++ • Python •
LLVM • Assembly •
Halide • DSLs

EXPERIENCE

QUALCOMM | Sr. Staff Engineer, Manager
Feb 2011 - Present | Austin, TX

- **Lead** a global team of engineers working on the **Halide** compiler. Halide is a domain specific language for computational photography and image processing. Primary focus is the development and maintenance of the **Hexagon Vector eXtensions (HVX)** backend in Halide. HVX is a wide-vector coprocessor to **Qualcomm's Hexagon® DSP**.
- Develop product roadmap in alignment with the hardware roadmap and customer needs.
- Supervise execution, both internally and externally in collaboration with the open-source community.
- First engineer to start working on the HVX backend in Halide.
- Conceptualized and developed a modular testsuite for on-device testing to be used internally with the CI infrastructure at Qualcomm.
- Worked with multiple OEM partners to deploy performant software solutions based on Halide on many Android phones running on Qualcomm Snapdragon processors such as **Google Pixel**, **Sony Xperia** and **OnePlus**.
- Extensive work on codesize and performance improvements in **LLVM** targeted towards Hexagon™ and HVX both.
  - For example, **reusing loop carried vector values from previous iterations**

QUALCOMM | Interim Engineering Intern
May 2009 - Dec 2009 | Austin, TX

- Worked on a project to use the Open64 compiler to guide the Hexagon architecture team as they planned an expansion of the ISA for an upcoming revision of the Hexagon architecture.
- Diagnosed a critical 30% performance slowdown caused by the instruction scheduler in GCC.

CODITO TECHNOLOGIES | Software Developer
July 2005 – June 2008 | Pune, India

- Part of a 2 member GNU Tools team working on developing and maintaining an out-of-tree **GCC backend for the DXP® VLIW processor** by Icera.
- Worked on a number of correctness and performance issues in the backend.

TALKS & PRESENTATIONS

- **Halide for Hexagon DSP with Hexagon Vector eXtensions (HVX) using LLVM** - Pranav Bhandarkar, Anshuman Dasgupta, Ron Lieberman, Dan Palermo (Qualcomm), Dillon Sharlet, Andrew Adams (Google) - LLVM Workshop, CGO 2017, Austin TX, USA.
- **Code Size Reduction using Similar Function Merging** - Tobias Edler Von Koch (Univ. of Edinburgh), Pranav Bhandarkar (Qualcomm) - LLVM Developers' Meeting, 2013, San Francisco, CA, USA.