

Pranav Kant

☎ (+1) 801.232.8659 | ✉ pranav913@gmail.com | 🏠 pranavk.me | 📱 pranavk | 📧 pranvk

Education

University of Utah

Salt Lake City, Utah, USA

M.S., COMPUTER SCIENCE

Aug 2018 - May 2020

- **GPA:** 4.0/4.0
- **Courses:** Advanced Compilers, Computer Architecture, Programming Languages, Advanced Algorithms, Embedded Systems, Advanced Operating Systems, Machine Learning, Software Verification
- **Project:** Semantic function equivalence checker

National Institute of Technology

Hamirpur, Himachal Pradesh, India

B.TECH., COMPUTER SCIENCE AND ENGINEERING

Aug 2011 - May 2015

- **GPA:** 7.4/10 (90th percentile)
- **Courses:** Algorithms & Data structures, Object-oriented Paradigm, Advanced Computer Architecture, Advanced Computer Networks, Advanced Operating Systems, Information Security, Artificial Intelligence, Digital Image Processing
- **Thesis:** Program Dependence Mesh: A data-driven, synthesizable intermediate representation for imperative programs

Work Experience

Microsoft

Redmond, Washington

COMPILER ENGINEER

June 2020 - Present

- Working on Microsoft's C++ compiler team touching various low-level system software components including native code-generation for x86 and ARM, linking, debug info generation, COFF and PE binary formats, and Microsoft's internal post-link tooling.
- Substantial runtime performance improvements (up to 3x speedup) for debug builds.

University of Utah

Salt Lake City, Utah

GRADUATE RESEARCH ASSISTANT

January 2019 - May 2020

- Worked on dataflow-based pruning (published in OOPSLA'20) for speeding up superoptimizer for LLVM IR
- Worked on code size reduction tool using Alive2 - a verification tool for LLVM transformations.

Collabora

Remote

SOFTWARE ENGINEER

Jan 2016 - Jul 2018

- Worked on LibreOffice Online (similar to Google docs).
- Created a monitoring console from scratch to monitor the LibreOffice Online server from the browser (backend in **C++** and frontend in **Javascript**).
- Made LibreOffice Online feature rich by working on framework to expose core functionality in LibreOffice desktop, such as comments, dialogs, and context-menus.

Google Summer of Code 2014 (GNOME) and 2015 (LibreOffice)

Remote

STUDENT DEVELOPER

May 2014 - Aug 2014

- GNOME (2014): Added support for browsing DLNA media servers in gnome-photos, GNOME's photo management application.
- LibreOffice (2015): Wrote a Gtk+ widget in **C++** to expose LibreOffice functionality, and integrated it successfully in gnome-documents.

Projects

Little Lang: New programming language for high-performance integer computation

University of Utah, USA

COURSE PROJECT FOR ADVANCED COMPILERS

Aug 2018 - Dec 2018

- Wrote a recursive descent parser and typechecker in **C++** for our language; used visitor pattern for AST traversal.
- Lowered the AST to LLVM IR format; runtime checks for array out-of-bounds; analyzed, researched, and improved lowering with help of various benchmarks.
- Analyzed, and researched the effect of varying integer widths on performance.

Program Dependence Mesh: A data-driven interpretation of imperative programs

NIT Hamirpur, India

UNDERGRADUATE THESIS

Aug 2014 - May 2015

- Worked on a synthesizable representation of programs written in imperative languages.
- Used LLVM to write a compiler pass to generate this representation from LLVM IR targeting a unified platform that can be used as an ASIC, a CPU, or even a CGRA.

Fingerprint authentication platform

Remote

CONSULTANT DEVELOPER

Aug 2013 - Oct 2013

- Next generation secure login system using NBIS. **Reverse-engineered** Windows drivers for Futronics fingerprint scanner.

Conferences & Talks

Oct '17	Google Mentor Summit , Represented LibreOffice	Mountain View, USA
Oct '17	LibreOffice Conference , Talk on "Native comments" and "Dialog tunneling"	Rome, Italy
Sep '16	LibreOffice Conference , Talk on "New features in LOKDocView widget"	Brno, Czech Republic
Sep '15	LibreOffice Conference , Talk on GSoC '15 project, "Integrating LibreOffice with GNOME"	Aarhus, Denmark
Aug '15	GNOME Conference , Talk on GSoC '15 project, "Integrating LibreOffice with GNOME"	Gothenburg, Sweden
Jul '15	Fedora Conference , Talk on "Automated UI testing"	Pune, India
Jul '14	GNOME Conference , Talk on GSoC '14 project, "Browsing DLNA Media servers"	Strasbourg, France

Extracurricular Activity

Google Summer of Code 2017

Remote

MENTOR

May 2017 - Aug 2017

- Mentored a [GSoC project on LibreOffice Online](#) to successful completion. It involved several bug fixes and improvements to LibreOffice Online including adding a horizontal ruler for the documents.

GNU/Linux User Group (GLUG-NITH)

NIT Hamirpur

SYSADMIN & CLUB LEAD

May 2012 - May 2015

- Awarded certificate of appreciation by university for reporting and fixing major security vulnerabilities in college exam result server: Microsoft SQL server vulnerability found by using Metasploit, SQLi, and XSS.
- Installed & maintained Ubuntu, Fedora, BOSS, GNU, kernel.org, LinuxMint, and LDP mirror servers.
- Developed & maintained pastebin, and an exam result software.
- Installed and maintained club's mail server, web server, wiki, and local project hosting.
- Organized inaugural events: Software Freedom Day, Linux fests, hackathons, coding competitions, and several educational meetups.