

Pranav Kant

☎ (+1) 801.232.8659 | ✉ pranav913@gmail.com | 🏠 pranavk.me | 📺 pranavk | 📄 pranavk

Education

University of Utah

Salt Lake City, Utah, USA

M.S., COMPUTER SCIENCE

Expected: July 2020

- **GPA:** 4.0/4.0
- **Courses:** Advanced Compilers, Computer Architecture, Programming Languages, Advanced Algorithms, Embedded Systems, Advanced Operating Systems
- Tentative thesis/project in compiler optimization

National Institute of Technology

Hamirpur, Himachal Pradesh, India

B.TECH., COMPUTER SCIENCE AND ENGINEERING

May 2015

- **GPA:** 7.4/10 (class topper: 8.2)
- **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

SOFTWARE ENGINEER INTERN

May 2019 - Aug 2019

- Worked on writing static analysis rules and framework for build time linting tool for catching common mistakes specific to OneDrive codebase.
- Caught multiple deadlocks and performance bugs within few weeks of deployment.

University of Utah

Salt Lake City, Utah

GRADUATE TEACHING AND RESEARCH ASSISTANT

August 2018 - Present

- Teaching Assistant for CS 3810 - Computer Organization in Fall'18.
- Research Assistant working on superoptimizers for LLVM IR with John Regehr.

Collabora (Open-source consultancy company based in Cambridge, UK)

Remote

SOFTWARE ENGINEER (WORKING ON LIBREOFFICE)

Jan 2016 - Jul 2018

- Top contributor worldwide to LibreOffice Online (similar to Google docs) and Certified LibreOffice Professional Developer.
- Created a monitoring console from scratch to monitor the LibreOffice Online server from the browser (wrote backend in **C++** and frontend in **Javascript**).
- Developed a **C++** API to expose comments in LibreOffice core (equivalent to Microsoft Office), and tunneled them to the browser via LibreOffice Online backend.
- Created a framework in **C++** to tunnel dialogs from LibreOffice in headless mode to browser.
- Created framework in **C++** for exposing context-menus in LibreOffice Online.
- Hardened LibreOffice Online by implementing security headers, and identifying and fixing several security bugs.

Google Summer of Code 2015 (LibreOffice)

Remote

STUDENT DEVELOPER

May 2015 - Aug 2015

- Wrote a Gtk+ widget in **C++** to expose LibreOffice functionality, and integrated it successfully in gnome-documents.

Google Summer of Code 2014 (GNOME)

Remote

STUDENT DEVELOPER

May 2014 - Aug 2014

- Added support for browsing DLNA media servers in gnome-photos, GNOME's photo management application.

Projects

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

University of Utah, USA

COURSE PROJECT FOR ADVANCED COMPILERS

Aug 2018 - Present

- 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

- Invented a synthesizable representation, called Program Dependence Mesh (PDM), of programs written in imperative languages.
- Used LLVM to write a compiler pass to generate PDM from LLVM IR. The target of PDM is a unified platform that can be used as an ASIC, a CPU, or even a CGRA.

Fingerprint authentication platform

CONSULTANT DEVELOPER

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

Chandigarh, India

Aug 2013 - Oct 2013

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*

Volunteer Experience

Peloton *Nov 2017 - Apr 2018*

- Bugfixes and improvements in C++ to Carnegie Mellon University's self-driving database management system.

Mozilla *Jan 2014*

- Added support in C++ for accessing raw, binary data on UDP sockets.

Fedora *Oct 2014 - PRESENT*

- Maintainer of SFML, sshrc, proxychains-ng, soundconverter in Fedora repositories. Reviewer and tester of other Fedora packages.

GNOME *Jan 2014 - Jan 2016*

- Setup automated UI testing framework. Several bugfixes in gnome-photos and gnome-documents.

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*

- Installed & maintained Ubuntu, Fedora, BOSS, GNU, kernel.org, LinuxMint, and LDP mirror servers.
- Developed & maintained pastebin, exam result software on student server.
- Installed and maintained club's mail server, web server, wiki, and local project hosting.
- Organized inaugural events: Software Freedom Day, Linux Installation fests, NITH Hackathon, Codechef Coding Competition, and educational meetups.