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 *Expected: July 2020*
- **GPA**: (too soon to know)
- **Courses**: Advanced Compilers, Computer Architecture, Programming Languages
- Tentative thesis in Compilers

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

Skills

Programming	C/C++, Javascript, Python, Bash, Java, Ruby, Haskell
Web	Django, Node.js, Rails, Flask
Design	Adobe Photoshop, GIMP, Inkscape, Adobe Flash
Others	LLVM, MongoDB, Redis, Neo4j, MySQL, PostgreSQL, Boost (C++), GTK+, Cairo, Metasploit

Work Experience

University of Utah *Salt Lake City, Utah*
GRADUATE TEACHING ASSISTANT (CS 3810 - COMPUTER ORGANIZATION) *August 2018 - Present*
- Evaluating homework assignments and holding regular office hours for students.

Collabora (Open-source consultancy company based in Cambridge, UK) *Remote*
SOFTWARE ENGINEER (WORKING ON LIBREOFFICE) *Jan 2016 - Jul 2018*
- 2nd highest 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.

Jugnoo (Hyperlocal delivery platform and auto-rickshaw aggregator) *Chandigarh, India*
BACKEND DEVELOPER *Jul 2015 - Jan 2016*
- Maintained backend authorization module in **Node.js** used by multiple Jugnoo apps for authentication; worked on several bugfixes.
- Developed a user referral leaderboard using **Redis** sorted sets and CSV file importer for the backend support team.

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.

Woocation *Hamirpur, India*
CO-FOUNDER *May 2012 - Aug 2013*
- Bootstrapped a startup idea - a recommendation engine based travel platform providing optimized routes, weather updates and places to visit.
- Used Natural Language Processing to expose flight connection, weather, and transportation data in human-readable format; used **Neo4j** (a graph database) to query our flight database.
- Crunched huge amount of OpenStreetMap data to find optimized travel distances between cities using OSRM (Open Source Routing Machine).

Projects

Little Lang: New programming language for high-performance integer computation *University of Utah, USA*
<small>COURSE PROJECT FOR ADVANCED COMPILERS</small> *Aug 2018 - Present*

- Wrote a recursive descent parser in **C++** to parse Little Lang's grammar to generate Abstract Syntax Tree (AST); used Flex to tokenize the input stream.
- Wrote a typechecker in **C++**; used visitor pattern to visit all the nodes of AST and tell if any "little" program is well-typed.
- Converted the AST to LLVM IR format in the code generation phase which will help us to write optimizations for our programs.

Program Dependence Mesh: A data-driven interpretation of imperative programs *NIT Hamirpur, India*
<small>UNDERGRADUATE THESIS</small> *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 *Chandigarh, India*
<small>CONSULTANT DEVELOPER</small> *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*

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, soundconverter, sshrc, proxychains-ng 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*
<small>MENTOR</small> *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*
<small>SYSADMIN & CLUB LEAD</small> *May 2012 - May 2015*

- Installed & maintained Ubuntu, Fedora, BOSS, GNU, kernel.org, LinuxMint, and LDP mirror servers.
- 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.

Computer Science & Engineering Community (CSEC) *NIT Hamirpur*
<small>SYSADMIN & TECHNICAL CLUB LEAD</small> *May 2013 - May 2015*

- Represented NIT Hamirpur in IIT Delhi and IIT Mumbai annual technical competitions.
- Organized NITH Hackathon; inaugurated ACM ICPC Chapter and CodeChef chapter.
- Conducted several coding competitions as part of CSEC annual technical festival.