

Pranav Kant

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Education

University of Utah

M.S., COMPUTER SCIENCE

Salt Lake City, Utah, USA

Expected: July 2020

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

National Institute of Technology

B.TECH., COMPUTER SCIENCE AND ENGINEERING

Hamirpur, Himachal Pradesh, India

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

GRADUATE TEACHING ASSISTANT (CS 3810 - COMPUTER ORGANIZATION)

Salt Lake City, Utah

August 2018 - Present

- Evaluating homework assignments weekly.
- Hold regular office hours to ensure students understand course concepts properly.

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.
- 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.

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.
- Integrated PayTM (digital wallet) and Google sign-in in the backend.

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

COURSE PROJECT FOR ADVANCED COMPILERS

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

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

Chandigarh, India

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

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, sshr, proxchains-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

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.
- 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

SYSADMIN & TECHNICAL CLUB LEAD

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.