

Ranveer Aggarwal

SOFTWARE ENGINEER

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Education

IIT Bombay

Mumbai, India

B.TECH. (HONS) IN COMPUTER SCIENCE AND ENGINEERING

2016

Minor in Industrial Design

Work Experience

Microsoft

Hyderabad, India

SOFTWARE ENGINEER

July 16 – Present

- Working on enhancing services that provide data to Microsoft's Volume Licensing applications under the Universal Store Team
- Responsibilities include modernizing existing systems through continuous integration, automated testing and cloud migration

Python Software Foundation (DIPY)

GOOGLE SUMMER OF CODE STUDENT

May 2016 – August 2016

Project Title: A lightweight UI for Medical Visualizations

- Designed and developed a UI framework based on VTK-Python that allows interaction within the visualization window
- The framework removes dependency on vanilla VTK widgets and can be extended to any kind of UI element
- Implemented 2D and 3D menus consisting of elements like buttons, textboxes, sliders and panels (a combination of other elements)

KDE

GOOGLE SUMMER OF CODE STUDENT

May 2015 – August 2015

Project Title: Package Install for Third-Party Plugins

- Developed interfaces in Qt5 to install third party plugins, platform-independently across five KDE applications using PackageKit
- Ported KDE applications and libraries like Network-Filesharing and language-plugins from KDELibs4 to KF5

Citi

Pune, India

SOFTWARE DEVELOPMENT INTERN

June 2016 – August 2016

- Initiated and led a project to future-proof legacy custodian applications by building a REST API controller
- Built on NodeJS and Express, the controller is modular, re-programmable and uses ORM to connect to databases

Key Academic Projects

Tracking and Reconstruction of a Human Body

Guide: Prof. Parag Chaudhuri

UNDERGRADUATE DISSERTATION

Autumn 2015 – Spring 2016

- Co-Designed a novel method to reconstruct human body using noisy point cloud data in real-time from a single Kinect
- Implemented the method in OpenFrameworks using OpenNI and NiTE with reasonable accuracy for markerless motion capture

Photographing Paintings by Image Fusion

Prof. Ajit Rajwade

MATLAB

Spring 2016

- Implemented an algorithm that addresses the problem of obtaining quality photographs of a painting by multi-image fusion methods
- This image fusion method is applicable to photographs of a painting taken with a hand-held camera without any particular setup

Image Quilting for Texture Synthesis and Transfer

Prof. Suyash Awate

MATLAB

Autumn 2015

- Implemented a pioneering algorithm by Efros and Freeman for generating textures by stitching together small image patches
- Further developed the extension of the algorithm to render an image with a texture taken from a different image

Lightcuts

Prof. Parag Chaudhuri

C++ (PBRT)

Spring 2015

- Implemented a scalable framework for computing realistic illumination based on the research paper 'Lightcuts' [SIGGRAPH 2005]
- Significantly lowered the rendering time for several (>1000) uniformly distributed point light sources

Rendering with Photorealistic Renderman

Prof. Parag Chaudhuri

RENDERMAN

Spring 2015

- Wrote shaders and rendered raytraced scenes using Pixar's rendering software PRMan
- The resultant scene elements produced effects like color bleeding, caustics, area lights and soft shadows

Transformer Rendering and Animation

Prof. Parag Chaudhuri

C++, OPENGL

Autumn 2014

- Modeled, textured and animated (via forward and reverse kinematics) a transformer robot from scratch with OpenGL
- Developed an interactive environment for the keyboard controlled bot with inter-object collisions

Threading and Scheduling Implementation in GeekOS

Prof. D.M. Dhamdhare

C, C++

Autumn 2014

- Modified the existing scheduler of an experimental OS by adding Multi Level and Round-Robin scheduling
- Added support for kernel and user level threads and methods for deadlock handling

Development Projects

IITB App - The Official IIT Bombay Application

ANDROID, DJANGO

Spring 2015

- Co-developed web services to allow content retrieval and engagement for LDAP authenticated users
- Interviewed by and featured in the Times of India for taking up the first of its kind student initiative in India

Kapi - A Classroom Note Taker (Live on Windows Store)

Microsoft Code.Fun.Do

WINDOWS UNIVERSAL PLATFORM, JAVASCRIPT

Spring 2014

- Designed an app that, along with normal text, typesets math in LATEX format as well as facilitates drawing
- Worked in a team of 4 to develop a program that recursively breaks down the input chunks into smaller components (tokens), parses them into \LaTeX and displays them on the screen using MathJax

Achievements

- 2016 **Runner Up**, Microsoft Code.Fun.Do Hackathon
- 2015 **Runner Up**, Lenovo Game Jam
- 2014, 15 **3rd Place**, Microsoft Build the Shield CTF Hacking Competition
- 2014 **National Winner**, Microsoft Code.Fun.Do Hackathon
- 2012 **All India Rank 104**, National Level Science Talent Search Examination (NSTSE)
- 2009 **All India Rank 1**, International Olympiad of Science (IoS)

Skills

Comfortable C/C++, Python, Java, Android, HTML, CSS, Bootstrap, OpenGL, VTK, MATLAB

Familiar AngularJS, Django, NodeJS, JavaScript, PHP, VHDL, Renderman, \LaTeX

Miscellaneous

Side Projects

PROJECTS AND CONTRIBUTIONS

- Contributed to PlanetKDE as a part of a Season of KDE project (Winter 2014); redesigned its interface
- Developed an application using Yahoo! Boss API and YQL that outputs rumours related to the given query at Yahoo! HackU 2013
- Elected as the web secretary of Hostel 3 for the year 2013-14; redesigned Hostel 3's website

Manager, Web and Coding Club, IIT Bombay (2014-15)

CAMPUS ACTIVITIES

- Led a two-tier team consisting of 9 co-ordinators to encourage programming as a hobby, co-organizing several programming events
- Mentored 15 freshmen teams under Institute Technical Summer Projects in Summer of 2014

Interests

EXTRA-CURRICULAR ACTIVITIES

- Learned French as a third language through language classes at IIT Bombay
- Completed the year-long course by National Sports Organization in Squash in 2013