

Shikhar Jaiswal

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EDUCATION

IIT PATNA

B.TECH. IN COMPUTER SCIENCE AND ENGINEERING
 2016 - Present | Patna, India
 CPI: 8.47 / 10.0

TAGORE INTERNATIONAL, EOK

INTERMEDIATE/+2
 May 2016 | New Delhi, India
 CBSE : 93.60 / 100
MATRICULATION
 May 2014 | New Delhi, India
 CGPA: 10.0 / 10.0

COURSEWORK

COMPUTER SCIENCE

Programming and Data Structures + Lab
 Algorithms + Lab*
 Switching Theory + Lab**
 Innovative Design Lab**
 Introduction to Numerical Methods**

MATHEMATICS

Real Analysis
 Linear Algebra and ODE
 Complex Analysis and PDE*
 Discrete Mathematics*
 Probability Theory and Random Processes**

(*) courses to be completed by November 2017

(**) courses to be completed by May 2018

TECHNICAL SKILLS

PROGRAMMING

Proficiency:
 C • C++ • Python • Cython
 Familiarity:
 JavaScript • SQL

LIBRARIES AND TOOLS

CMake • MATLAB • SymPy
 GNU Octave • OpenCV
 • NumPy • Git • Django

ADDITIONAL

POSITIONS OF RESPONSIBILITY

Sub-Coordinator - NJACK
 (Computer Science Club)

EXPERIENCE

GOOGLE SUMMER OF CODE 2017 | SYMPY

May 2017 – Present | Mentors: Isuru Fernando and Sumith Kulal

- Improved overall infrastructure of *SymEngine*, a fast standalone C++ Computer Algebra System (CAS), and refactored its Python wrapper *SymEngine.py*.
- Introduced *SymEngine* as an optional core for *SymPy*, a popular symbolic manipulation engine in Python, and *PyDy*, a multi-body dynamics tool-kit.
- Implemented the support for Relational operators and NaN data type in *SymEngine*, Singleton Pattern in *SymEngine.py*, along with improvements to the Continuous Integration (CI), and increasing the code coverage of both the libraries.

PROJECTS

GESTURES ALIVE | GESTURE RECOGNITION PACKAGE

Ongoing

- Used Python libraries OpenCV and NumPy to build a gesture recognition app.
- Used web-cam to detect hand, and track its lateral movements to record gestures.

ORGAN EXCHANGE | DONOR-PATIENT EXCHANGE RESOLVER

Ongoing

- Developed a full stack web application using Django to allocate donor organs to patients keeping donor preference and blood group viability factors.
- Implemented a modified version of Gale-Shapley algorithm to reduce the exchange to a stable matching problem.

LET'S FOOTBALL | DESIGN-PATTERN BASED GAME ENGINE

Summer 2017

- Programmed a Football Game Engine in C++ to simulate object interactions of a football game.
- Identified and solved design problems associated with Football, Players and Team Strategy using Observer, Decorator and Strategy patterns respectively.
- Implemented RCP support for resource management and garbage collection.

ENIGMA STEGANOGRAPHER | STEGANOGRAPHY TOOL

Spring 2017

- Implemented the well known 1930 Enigma I Cipher (used by the Axis Powers in World War II) in C++.
- Enhanced capabilities by adding additional military plug-board support and increasing the number of encrypting mechanical rotors.
- Provides a total number of 11.2 sextillion different possible combinations.

HONOURS AND ACHIEVEMENTS

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|------|---|
| 2016 | Secured 98.71 percentile in JEE Advanced among 0.2 million candidates |
| 2016 | Secured 99.54 percentile in JEE Main among 1.2 million candidates |
| 2016 | Secured 99.13 percentile in National Entrance Screening Test (NEST) among 40,000 candidates |
| 2016 | Recipient of Kishore Vaigyanik Protsahan Yojana (KVPPY) Scholarship |
| 2013 | Recipient of CBSE Award for Community Service - Human Rights and Social Equality |