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

COLLABORATIONS

NJACK WINTER OF CODE 2017
Responsible for review and selection of projects and grade moderations

SYMENGINE
Member of the Push-Access Team

ACCEPTED TALKS

PYCON INDIA 2017
• CAS For Different Programming Languages Using SymEngine And SymPy

SCIPY INDIA 2017
• SymEngine: Leveraging The Power Of A CAS To Another

COURSEWORK

COMPUTER SCIENCE
Programming and Data Structures + Lab
Algorithms + Lab
Switching Theory + Lab
Innovative Design Lab

MATHEMATICS
Linear Algebra and ODE
Real and Complex Analysis and PDE
Discrete Mathematics
Optimization Techniques
Probability Theory

TECHNICAL SKILLS

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

LIBRARIES AND TOOLS
• NumPy • Tensorflow • Orange
• SymPy • OpenCV
• CMake • Git • Django

WORK EXPERIENCE

GOOGLE SUMMER OF CODE 2017 | SymPy
May 2017 – August 2017 | 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 Continuous Integration (CI), and increasing code coverage of both the libraries.

INDEPENDENT PROJECTS

PRECISION DECODING FOR MACHINE TRANSLATION USING SENTIMENT ANALYSIS | Research Project
Ongoing

- Explored novel techniques such as Greedy Hill Climbing, Cube Pruning, A* Searching and Integer Programming for SMT-based hypothesis decoding.
- Introduced a probabilistic sentiment-driven model using VADER, in conjunction with the standard generative phrase-based SMT model.
- Implemented and compared model performance against well known generative and neural models.

GESTURES ALIVE | Gesture Recognition Package
Autumn 2017

- Used Python libraries OpenCV and NumPy to build a gesture recognition app.
- Used web-cam to detect and track the hand and fingers.
- Gestures are processed to and matched with pre-defined custom gestures to produce identification output.

ORGAN EXCHANGE | Patient-Donor Exchange Resolver
Autumn 2017

- 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

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

HONOURS AND ACHIEVEMENTS

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 (KVPY) Scholarship
2013 Recipient of CBSE Award for Community Service - Human Rights and Social Equality