Divyanshu Shende

H-116/9, IIT Kanpur
home.iitk.ac.in/~divush
divush@iitk.ac.in
divush@cse.iitk.ac.in

Education

B.Tech - M.Tech Dual Degree (8.8/10.0)
Department of Computer Science and Engineering Expected: May 2018
Indian Institute of Technology Kanpur.

Relevant Coursework

Other Departments: Calculus, Linear Algebra and ODE, Probability and Statistics
Computer Science: Data Structures and Algorithms (I-II), Discrete Mathematics (I-III), Theory of Computation, Computing Laboratory, Operating Systems, Computer Networks, Algorithmic Game Theory, Machine Learning, Human Centered Computing, Visual Recognition, Computational Complexity, Markov Chains

Skills

Programming Languages: C, C++, Python, Octave,
Operating Systems: Ubuntu, Fedora, Arch Linux, Windows
Machine Learning: Scikit Learn, Tensorflow, Keras, Theano
General Purpose: LaTeX, Git, Bash,
Web Related: HTML/CSS, Javascript,

Projects

Programming Language for bots (Jan 14 - Apr 14)
- *Association for Computing Activities, IITK*

- Designed and Implemented a Programming Language for virtual robots
- Language had commands like MOVE, TURN, SHOOT and REPEAT TIMES
- Used Python's Turtle GUI implementation.

NachOS Operating System (July 15 - Dec 15)
- *Operating Systems Course Project*

- Implemented parts of NachOS Operating System.
- Implemented 12 system calls, scheduling algorithms, semaphores and shared memory support.
- Familiarized ourselves with the internal workings of an Operating System.

Partitioning into Expanders (July 15 - Dec 15)
- *Under Graduate Project 1*

- Read the paper *Partitioning into Expanders* by Luca Trevisan and Shayan Oveis Gharan.
- Explored the area of Spectral Graph Theory and it's connections to Computer Science.

C# to x86 compiler in Python (Jan 16 - Apr 16)
- *Compiler Design Course Project*

- Built a compiler from scratch to compile C# code into x86 assembly using PLY(Python Lex-Yacc).
- Supports functions, scoping, nested loops, namespaces, arrays.
- Is able to support one class per program well.

Real Time Object Detection (Feb 16 - Apr 16)
- *Machine Learning Course Project*

- Detect and classify objects into pedestrians, 2/3/4 wheelers based on CCTV footage.
- Object detection and classification done in real time with help of OpenCV and Scikit Learn.
- Two different classifiers used - SVMs and Random Forests.

Groupoid Interpretation of Type Theory (July 16 - Nov 16)
- *Under Graduate Project 2*

- Read the paper *Groupoid Interpretation of Type Theory* by Hofmann and Streicher.
- Explored basic Martin-Löf Type Theory and Category Theory.
- The paper answered the question of intentionality of Identity Sets.

Human Centered Computing (Mar 17 - Apr 17)
- *Human Centered Computing Course Projects*

- First Project involved scraping Train delay data and drawing useful inferences.
- Second Project was to look into browsing history and make inferences from it using topic modeling.
- Third Project was to look at mobile phone and survey data (from a study at MIT) and infer user behavior.

Activities

Academic Core Team, Counselling Service (2015-2016)
Academic Mentor, Counselling Service (2014 - 2015)
Editorial Team, NERD IITK (2013 - Present)
Data Structures and Algorithms, Course Co-Instructor, ACA Summer School, IITK (June 2017)
Executive, Startup Internship Program, E-Cell, IITK (2014 - 2015)
DUGC Nominee, CSE Department, IITK (2015 - 2016)