Rishabh Goyal

rishgoyell@gmail.com — (+91)9910055177

Education

Indian Institute of Technology, Kanpur Jul '14 - May '18
B.Tech. in Computer Science and Engineering | **GPA: 9.8/10**
St. Columba's School Apr '13 - Mar '14
AISSCE (Class 12 CBSE) | **Percentage: 97%**

Publications

CSGNet: Neural Shape Parser for Constructive Solid Geometry, Gopal Sharma, Rishabh Goyal, Difan Liu, Subhransu Maji, Evangelos Kalogerakis (*IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2018*)

Work Experience

Software Engineer, IBM Research Labs Jul '18 - Present
- Developing conversational agents for goal-oriented dialog, using deep learning and reinforcement learning techniques.
- Working with end-to-end generative, retrieval-based as well as traditional dialog models.

Research Intern, University of Massachusetts Amherst May'17 - Nov'17
Under Dr. Subhransu Maji and Dr. Evangelos Kalogerakis
- Contributed towards developing an algorithm that, given a 2D or 3D shape as input, could accurately predict programs to reconstruct the given shape, based on the principles of Constructive Solid Geometry (CSG).
- Designed a grammar to represent the visual programs and developed an accompanying renderer to parse programs and produce the corresponding output.
- Curated artificial dataset of image-program pairs to train a recurrent network for visual program induction.

Selected Projects

Generative Algorithm for Resource Efficient kNN Aug'17 - Jan'18
Dr. Piyush Rai, IIT Kanpur
- Conceptualized a generative algorithm to learn a small number of low dimensional prototypes along with their labels to represent large datasets for the purpose of performing k-Nearest Neighbors.
- Implemented the algorithm using Edward and reduced the model to less than 1% of its original size with comparable and in some cases better performance on the MNIST dataset.

Semantic Segmentation of Images and Point Clouds Nov'16 - Mar'17
Dr. Gaurav Pandey, IIT Kanpur
- Surveyed various deep learning and CRF based semantic segmentation algorithms
- Introduced an autoencoder branch in the fully convolutional network (FCN) for semantic segmentation to help recover local spatial information in deeper layers
- Implemented the algorithm using Tensorflow and showed improved performance over FCN

Ride-Sharing Web Application for The Campus Community Oct'16-Nov'16
Dr. Piyush P. Kurur, Dr. Satyadev Nandkumar
- Developed a Django based web application enabling the campus community to share transportation
- Created a forum where reviews of various cab agencies and drivers could be recorded and viewed

Relevant Coursework

Artificial Intelligence: Machine Learning, Bayesian Machine Learning, Visual Recognition, Multi-Agent Systems
Cognitive Science: Human Cognitive Processes, Neurobiology, Cognitive Linguistics, Computational Cognitive Science
Mathematics: Multivariate Calculus, Linear Algebra, Probability and Statistics, Discrete Mathematics, Stochastic Processes, Linear Programming and Spectral Graph Theory
Systems: Compiler Design, Computer Organization, Operating Systems, Computer Networks

Academic Achievements and Awards

- Among 40 students across India, to be awarded the prestigious **SN Bose Scholarship** 2017
- Awarded **Outstanding Freshman** 2014-15 by the Student's Gymkhana, IIT Kanpur
- Received the **Academic Excellence Award** for the academic years 2014-15, 2015-16, 2016-17 for outstanding academic performance at IIT Kanpur
- Awarded the **KVPY fellowship** 2012 and **NTSE Scholarship** 2010 by the Government Of India
- Emerged runners-up in the **code.fun.do Hackathon** 2015, organized by Microsoft.

Technical Skills

Languages: C/C++, Python, Matlab/Octave, Bash, Verilog, HTML, CSS
Tools: Scikit-Learn, PyTorch, Tensorflow, Edward, GNUPlot, LaTeX, AutoCAD, Git, PLY(Lex/Yacc), Django

Teaching and Other Activities

- **Tutor, Introduction to Programming** :Responsible for conducting weekly tutorial sessions, setting exams and assignments, and ensuring smooth conduct of lab sessions.
- **Secretary, Book Club**: Helped manage and efficiently run the Gymkhana Library. Organized occasional events such as book discussions and book exchanges. Ensured that the catalogue was updated with the latest books
- **Member, Institute Lawn Tennis Team**: Participated in and won several inter-collegiate tennis tournaments while representing the institute.