Divyanshu Talwar

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Education

IIIT-Delhi — New Delhi, India
Bachelor of Technology in Computer Science and Engineering — CGPA: 9.84/10 — May 2019
- Ranked among the top 1% of the institute.
- Dean's List for academic excellence awarded in all years.

Amity International School, Mayur Vihar — New Delhi, India
All-India Senior School Certificate Examination (CBSE), Class XII — PCT: 95.6% — Apr 2015
All-India Secondary School Examination (CBSE), Class X — CGPA: 10/10 — Apr 2013

Experience

Goldman Sachs
Technology Risk Analyst — May 2019 - Present
Engineering solutions to effectively manage the firm's technological risk.

IIIT-Delhi
Teaching Assistant, Probability and Statistics — Jan 2019 - May 2019
Held weekly tutorials and office hours, helped prepare and grade assignments and exams.

Undergraduate Research Assistant — Jan 2018 - May 2019
Advisor: Dr. Angshul Majumdar
Mathematically modeled collaborative filtering and bio-informatics problems.

Undergraduate Research Assistant — Dec 2017 - Nov 2018
Advisor: Dr. Saket Anand
Worked on learning disentangled representations along with exploring its applications in zero/few-shot learning, transfer learning, and targetted data-augmentation.

Publications

AutoImpute: Autoencoder based imputation of single-cell RNA-seq data — Scientific Reports
Divyanshu Talwar, Aanchal Mongia, Debarka Sengupta, and Angshul Majumdar. — Vol. 8, 16329 (2018)

Binary Matrix Completion on Graphs: Application to Collaborative Filtering — IEEE Signal Processing Letters
Divyanshu Talwar, Aanchal Mongia, Emilie Chouzenoux, and Angshul Majumdar. — Under Review

Relevant Coursework

Machine Learning	Deep Learning	Robotics	Collaborative Filtering
Multivariate Calculus	Linear Algebra	Probability and Statistics	Theory of Computation
Analysis and Design of Algorithms	Discrete Math	Numerical Analysis	Image Processing
Data Structures and Algorithms	GPU Computing	Computer Graphics	Virtual Reality

Skills

Languages : Python, C, C++, Java, Bash, C#, MATLAB, JavaScript.
Frameworks : PyTorch, Tensorflow, CUDA, OpenGL, Kafka, Node.js, Unity, Git, LaTeX.
Databases : SQL, NoSQL.

Positions of Responsibility

Representative	Represented CSE 2015 batch as a part of Student Senate, IIIT-Delhi.	Apr 2018 - May 2019
Coach	Guided Team Victorious Secret through their RGSoC journey.	Jul 2017 - Sept 2017
Instructor	Organized competitive programming workshops for high school students.	Jul 2016
Volunteer	Conducted mathematics and science tutorials for economically challenged junior-high school students at Summer School, IIIT-Delhi.	May 2016 - Jun 2016

Projects

Training Neural Networks without Backpropagation — 2019
Trained neural networks by solving an optimization problem where the different layers are separated by variable splitting technique and the ensuing sub-problems are solved using ADMM.

ShakaLaka Boom Boom: 2D Cartoon Sketches to 3D Models — 2019
Developed a Unity application to convert 2D sketches to 3D models which could be maneuvered around using hand gestures (to a position and orientation of choice) in a 3D scene.

Disentangling Latent Factors of Variation for Visual Data — 2018
Bachelor's Thesis | Advisor: Dr. Saket Anand
Researched on learning marginally independent disentangled latent representations for images (mainly facial) and its applications in zero/few-shot learning, transfer learning, and targetted data-augmentation.

Parallel DFS 2018
CUDA implementation of the parallel-DFS algorithm (proposed in IA3 2017 paper) which is up to 1.75× faster than the sequential algorithm.

GitHub Recommender System 2017
Implemented a recommender system for GitHub where users are recommended new repositories to work on, congruous to their liking (determined by their previously starred repositories).

Automated Game-Playing 2017
Implemented and compared a set of reinforcement learning algorithms along with exploring the efficacy of hacks, examining their performance on Atari games.

Demystifying Neural Networks 2017
Trained an unboxed neural network (with self-implemented forward-pass and backpropagation) and compared it with the scikit-learn's MLP classifier, examining their performance on MNIST dataset.

Numerical Methods 2016
Implemented algorithms for root finding, interpolation, differentiation and integration, and for solving linear systems of equations as well as ordinary and partial differential equations numerically.

Mapbots 2016
Mapped rooms using an Arduino powered bot surmounted by a ring of ultrasonic sensors.

Achievements

Dean's List for academic excellence. Sept 2016, 2017, 2018
First runner up at Code-Off: All-India Hackathon with over 350 participating teams. Oct 2017
Teaching excellence award at Summer School, IIIT-Delhi. Jun 2016
Country topper at the Third Amity International Olympiad for Physics. May 2014