

Shubham Dokania

SOFTWARE DEVELOPER · DATA SCIENTIST

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Education

Delhi Technological University (Formerly DCE)

B.TECH. IN MATHEMATICS AND COMPUTING ENGINEERING

New Delhi, India

Aug. 2013 - PRESENT

North Delhi Public School

AISSCE (ALL INDIA SENIOR SCHOOL CERTIFICATE EXAMINATION)

New Delhi, India

Apr. 2011- May. 2013

Skills

Programming Python, C++, C, JavaScript, MySQL, MATLAB, \LaTeX , HTML5

Frameworks & Libraries Django, Flask, Node.js, Theano, OpenCV, Keras, TensorFlow, Numpy

Familiar Lasagne, Android, MongoDB, Unity3D, Lua, Apache Spark

Experience

Coding Blocks

INSTRUCTOR

New Delhi, India

June 2016 - PRESENT

- Teaching and Mentoring students about programming and development practices.
- Teaching Machine Learning, Web Development and frameworks such as Flask, Django, Node.js.

Vision and Artificial Intelligence Research (VAIR) Group, DTU

UNDERGRADUATE RESEARCH HEAD

New Delhi, India

Apr. 2016 - PRESENT

- Study on various domains of Machine Learning and evolving field of representational learning.
- Implementation of robust, unsupervised feature descriptors, and research on various Deep Learning problems.

Codementor

MENTOR

New Delhi, India

Dec. 2015 - Present

- Expert Mentor on Codementor for help in Python, Machine Learning, Django, and general programming.
- Teaching people around the world and helping the developer community to grow.

Greplr

CO-FOUNDER & FULL STACK DEVELOPER

New Delhi, India

May. 2015 - Feb. 2016

- Developed a hyper-local discovery platform and service aggregation application with a scalable architecture.
- Exposed REST APIs to support android application using Flask(Python Framework) and Parse for Database backend and analytics.

Publications

Opportunistic Self-Organizing Migrating Algorithm on Real-Time Dynamic Travelling Salesman Problem

Research Publication

UNDERGRADUATE RESEARCH STUDENT

Apr. 2016 - Nov. 2016

- Modified an evolutionary optimization algorithm to achieve better accuracy for multi-dimensional objective functions, and achieved promising results for the complex problem of Dynamic Travelling Salesman Problem.
- Accepted for oral presentation at 51st Conference on Information Sciences and Systems (IEEE CISS) 2017. <http://ieeexplore.ieee.org/abstract/document/7926065/>

Hierarchy Influenced Differential Evolution: A Motor Operation Inspired Approach

Research Publication

UNDERGRADUATE RESEARCH STUDENT

Nov. 2016 - May 2017

- Designed a novel motor function based evolutionary optimization algorithm inspired from the motor cycle in human beings and the co-operation through neural pathways. (<https://arxiv.org/abs/1702.05308>)
- Transcript submitted to IJCCI 2017.

Projects

Reinforcement Learning for generic Evolutionary Optimization

New Delhi, India

MACHINE LEARNING, UNSUPERVISED, EVOLUTIONARY COMPUTATION, REINFORCEMENT LEARNING

Feb. 2017 - PRESENT

- Working to build a novel RL model for generic Evolutionary optimization.
- Prototype model shall optimize an optimizer using Reinforcement learning to achieve desired results.

Semantic Segmentation and Feature Representation

New Delhi, India

MACHINE LEARNING, DEEP LEARNING, UNSUPERVISED, SEMANTIC SEGMENTATION, AUTOENCODERS

July 2016 - Sep. 2016

- Achieved Impressive performance on the task of semantic segmentation using various auto-encoders.
- Working on improvements to achieve better manifold representation for embedding representational vectors.

Deep Q-Learning and Reinforcement Learning

New Delhi, India

MACHINE LEARNING, DEEP LEARNING, UNSUPERVISED, REINFORCEMENT LEARNING, OPENAI

May 2016 - Jun. 2016

- Built Neural Network model based on RNNs and CNNs to learn various states of a game, given only input frames and rewards.
- Achieved a goal of optimizing an agent to play the games on OpenAI gym simulator and achieve human-like accuracy.

Tracking using multi-camera environment

New Delhi, India

MACHINE LEARNING, COMPUTER VISION, DATABASE

Mar. 2016

- Designed a tracking interface using multiple cameras for face detection and recognition from database to know trajectory followed by a person.
- Built for surveillance tasks at public places. Prototype was presented at Code for India hackathon, at Rashtrapati Bhawan, India

Library for Evolutionary Optimization Techniques

New Delhi, India

EVOLUTIONARY ALGORITHMS, GAME THEORY, NEURAL NETWORKS, OPTIMIZATION TECHNIQUES

Dec. 2015 - Mar. 2016

- Built an Evolutionary Optimization Library for APIs for algorithms such as Genetic Algorithm, Particle Swarm Optimization, Differential Evolution etc.
- Designed a virtual bot to play board games while optimizing the outcomes to achieve a win (Link, Link)

Food Requirement Simulation and Prediction

New Delhi, India

DATA SCIENCE, SERVER

Oct. 2015

- Developed a web dashboard to display data and predictions for food consumption and wastage for the NGO Akshaya Patra.
- Exposed APIs for data and Predictions using Django. The prototype won the Grand Prize award at CodeForIndia 2015 Hackathon.

Autonomous Robot Navigation System Using Kinect

New Delhi, India

COMPUTER VISION, EMBEDDED SYSTEMS

Mar. 2015 - May 2015

- Built an autonomous robot and designed it's obstacle avoidance and navigation system using OpenCV Python library.
- Analyzed performance on various development boards (Raspberry Pi, BeagleBone Black etc.) by running and optimizing the scripts.
- Used Depth maps and pixel intensity calibrations to compute distance of multiple obstacles and calculate a feasible path.

Honors & Awards

Oct. 2015 **Grand Prize Winner**, Code For India Hackathon

New Delhi, India

July 2015 **Grand Prize Winner**, HackIndia 2015

Bangalore, India

Apr. 2015 **1st in Track**, PolicyHacks by EPoD, Harvard University

New Delhi, India

Mar. 2015 **3rd Position**, </geekfest> 2015 by 91SpringBoards and IBM Bluemix

New Delhi, India

Mar. 2015 **Special Mention**, Byldathon at IIIT Delhi

New Delhi, India

Oct. 2013 **Best Student Award**, The Times of India(TOI)

New Delhi, India

Aug. 2010 **2nd in State**, National Science Talent Search Examination

New Delhi, India

Relevant Coursework

Mathematics

Linear Algebra, Probability and Statistics, Stochastic Processes, Numerical Optimization

Computer Science

Algorithms and Data Structures, Theory of Computation, Applied Graph Theory, Fuzzy Logic

Additional

Financial Engineering, Computer Vision and Digital Image Processing, Computer Graphics