GUNSHI GUPTA

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EDUCATION

DELHI TECHNOLOGICAL UNIVERSITY **New Delhi, India**
Bachelor of Technology: Mathematics and Computing Engineering *2012-2016*
- Aggregate CGPA: 8.04 (First Class Division)

SPRINGDALES SCHOOL, DHAULA KUAN **New Delhi, India**
Major in 11th, 12th grade: Science *1999-2012*
- *Percentage (CBSE Board): 95.5%*

PROFESSIONAL EXPERIENCE

ROBOTICS RESEARCH CENTER, IIIT HYDERABAD **Hyderabad, India**
Graduate Research Assistant (under Dr. K. Madhava Krishna) *February 2017 – Present*
- Project for Center of Artificial Intelligence and Robotics, DRDO (Defense Research and Development Orgn.) : Developed Multi Robot-SLAM framework facilitating Incremental/Batch Optimization, Centralized/Distributed map merging, Dense point cloud registration, Robot Encounters, using Visual Odometry front-end. Tested on Husky UGV Robot Platform with good results for complex trajectories (C++, ROS, libviso2, GTSAM, g2o)
- Viewpoint Invariant Junction Recognition using Deep Network Ensembles (submitted to IROS 2018). Proposed Siamese-LSTM architecture trained over junction traversals in diverse settings. Created first such sequence-based dataset from GTA5 & Mapillary to enable pace recognition from drastically different viewpoints, to be released upon publication. Currently working on generative-adversarial methods for invariant localization through view synthesis.

MICROSOFT CORPORATION **Hyderabad, India**
Software Developer *June 2016 – January 2017*
- Full Stack Development on Rewards/Feedback Management Applications (SQL, Javascript, C#)
- Conducted sessions on 'MATH behind ML' in Machine Learning workshops held for HRCELA division(~150 members). Prepared course material and assignments, and headed planning committee for the same.
- Built modules to predict employee performance scores, summarize feedback, recommend and extract salient keyphrases at the time of writing feedback, through NLP techniques (R, Python, Azure ML Studio)
- Hackathon: built a Text-To-Graphics generator using scale and spatial relations learnt from the MS-COCO Dataset for entities extracted from sentences as WordNet synsets. Entity image retrieval done through Microsoft's Computer Vision APIs. Search phrases for entities were augmented with information from POS tagging and linguistic analysis

NAYI DISHA STUDIOS **New Delhi, India**
Computer Vision Intern *December 2015 – January 2016*
- Goal: replace expensive Kinect sensor required for games with lost cost camera setup using Computer Vision
- Integrated gesture and activity recognition models (Caffe) with Unity3d games for Android and iOS
- Optical-Flow based motion segmentation, player detection and tracking (OpenCV)

GRAPHICS RESEARCH GROUP , IIIT DELHI **New Delhi, India**
Research Intern *September 2015 – October 2015*
- Developed optimised C++ implementation of pipeline from 3D surface reconstruction of objects from planar cross sections (OpenGL, Blender, CGAL), based on extra constraints satisfied by object geometry

MICROSOFT CORPORATION **Hyderabad, India**
Software Development Intern *June 2015 – July 2015*
- Created windows application & hosted WebAPIs to monitor & configure usage metrics of Azure resources
- Hackathon: contributed towards IR sensor-based smart parking concept for the Microsoft campus

FRESHMONK- 91 DESIGN LABS **New Delhi, India**
Machine Learning and Image Processing Intern *December 2014 – January 2014*
- Kernel-based clustering in LAB color spaces to do robust graphic-to-stencil screen conversion for screen printing
- Automatic Vectorization with gap-proof layers using Bezier Spline processing in SVG (OpenCV, Numpy, Scipy)

PERSONAL PROJECTS (B.TECH)

- Maximal Clique Finding, Incidence and Co-Coloring on graphs, Graph Theoretic Formulations
- Multi-View Geometry: Iterative Reconstruction from multiple sequential views

LANGUAGES AND PLATFORMS

- C, C++, Python(+computing packages), MATLAB, C#, Javascript, SQL, R, HTML, LaTeX
- OpenCV, Tensorflow, GTSAM, g2o, Unity3d, ROS, Point Cloud Library, OpenGL, Caffe, Cmake, Git, Microsoft Azure

RESEARCH INTERESTS

- 3D reconstruction, Multi-Robot SLAM, Visual Place Recognition
- Generative Adversarial Networks, Memory Augmented Networks

COURSES

- B.Tech : Data Structures, Probability and Statistics, Theory of Computation, Algorithm Design and Analysis, Computer Graphics, Software Engineering, Discrete Mathematics, Linear Algebra, Scientific Computing, Matrix Computations, Computer Architecture, Stochastic Processes, Optimization Techniques, Mathematical Modeling and Simulation, Real Analysis, Differential Equations, Modern Algebra, Fuzzy Sets and Logic, Applied Graph Theory, Operations Research
- MOOCS : (Coursera)Machine Learning, Introduction to Natural Language Processing, Introduction to Computer Vision, Deep Learning, Deep Learning in Computer Vision, Digital Signal Processing, Computational Photography (CS 6475), Convex Optimization(EE364a), Reinforcement Learning (by David Silver)