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)

PROFESSIONAL EXPERIENCE

ROBOTICS RESEARCH CENTER, IIIT HYDERABAD **Hyderabad,India**
Graduate Research Assistant *February 2017 – Present*
- CAIR Project, DRDO (Defense Research and Development Orgn.) : Developed of Multi Robot-SLAM framework facilitating: Incremental/Batch Optimization, Centralized/Distributed map merging, Robot Encounters, using Visual Odometry front-end. Tested on Husky UGV Robot Platform (C++, ROS, libviso2, GTSAM, g2o)
- Viewpoint Invariant Junction Recognition using Deep Network Ensembles (Submitted for WACV 2018). Currently exploring generative-adversarial models for localization.

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(~100 members). Prepared course material and assignments for the same.
- Used NLP to build modules to predict employee performance scores, summarize feedback, and recommend and extract salient keyphrases at the time of writing feedback (R, Python, Azure ML Studio)
- Hackathon: built a Text-To-Graphics generator using spatial relations between entities learnt from the MS-COCO dataset, and entity image retrieval through Microsoft's Computer Vision APIs. Search phrases for entities were augmented using information from POS tagging and linguistic analysis

NAYI DISHA STUDIOS **New Delhi, India**
Computer Vision Intern *December 2015 – January 2016*
- Trained gesture and activity recognition models in Caffe, integrated 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 MATLAB 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 & gap sealing between layers using Bezier Spline processing in SVG (OpenCV, Numpy, Scipy)

PERSONAL PROJECTS

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

PLATFORMS AND LANGUAGES

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

RESEARCH INTERESTS

- 3D reconstruction, Multi-Robot SLAM, Path Planning, Visual Place Recognition
- Generative Adversarial Networks, Deep Reinforcement Learning
- Memory Augmented Neural Networks
- Graph Neural Networks
- Computational Geometry

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 & Simulation, Real Analysis, Differential Equations, Modern Algebra, Fuzzy Sets and Logic, Applied Graph Theory, Operations Research
- MOOCS : Natural Language Processing, Computer Vision, Deep Learning, Digital Signal Processing, Computational Photography, Mathematical Modeling, Artificial Intelligence for Robotics, Convex Optimization