Rajat Vikram Singh

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I am pursuing a graduate degree in Software Engineering at Carnegie Mellon University. My program focusses on teaching principled approaches to software development through a year long capstone project. I have experience with Computer Vision through my undergrad projects, past employments and coursework at CMU. With this combined background in Computer Vision and Software Engineering, I'm looking for full time positions in the field of Computer Vision.

Education

Carnegie Mellon University **School of Computer Science** *(Expected Grad – Dec 2016)*	**Master of Software Engineering** - Intro. to Machine Learning (10-601) - Computer Vision (16-720) - Intro. to Computer System (15-513) - Deep Learning (36-780) - Software Architecture (17-655) - Managing Software Development (17-653)
IIIT Delhi *(Sep 2008 – May 2012)*	**Bachelor of Technology in Computer Science and Engineering (Honors)** Specialization in: - Image Analysis and Machine Intelligence - Data Analytics

Experience

Wazzat Labs. [1] Hyderabad, India *(Jan 2014 – Mar 2015)*	**Research Engineer – Computer Vision** Designed and implemented a visual search engine for fashion e-commerce websites retrieving apparels visually and categorically similar to the user input. This product got accepted in the Target Accelerator Program, 2014 [2].
IIIT Hyderabad Hyderabad, India *(Sep 2014 – Dec 2014)*	**Research Assistant – Computer Vision – Indian Digital Heritage Project** Programmed an augmented reality app for Android, using Vuforia SDK to overlay discolored and damaged murals of Hampi (a heritage site in India) with its restored painted version.
Informatica Inc. **ILM Business Unit** Hyderabad, India *(Jun 2012 – Oct 2013)*	**Software Engineer – Java** Wrote optimized installers for data intensive products in the Information Lifecycle Management business unit. Also responsible for managing and maintaining the complete CI infrastructure and builds. Constantly a top performer, winner of a spot award and the ILM Hackathon, 2013.
GE Global Research Bangalore, India *(May 2011 – Jul 2011)*	**Summer Intern – Medical Image Analysis Lab** Wrote an algorithm to quantitatively analyze and score the results generated by the lab's vertebrae numbering algorithm using spinal MRI images as input.
IIIT Delhi New Delhi, India *(May 2010 – Jul 2010)*	**Summer Intern – Image Analysis and Biometrics Lab** Developed and evaluated algorithms to detect video tampering by using digital image watermarking, bit manipulations and steganography.

Skills

Programming Languages	Java, C, C++, C#, Python, Perl, SQL, Linux Shell
Tools + Technologies	OpenCV, ITK Toolkit, MATLAB, Android SDK, Android NDK, Oracle, MySQL, PostgreSQL, Jenkins, Apache Archiva, Maven, Perforce, Git, Gradle, Spring, Hibernate, Informatica PowerCenter

Publication

Hima Patel, **Rajat Vikram Singh**, Vidit Aatrey, Ramasubramanian Sundararajan, and Vivek Vaidya: **Automated Vertebra Numbering and Plane Prescription along the Spine Using a Multi Model Atlas**; 20th Annual Meeting of ISMRM, Melbourne, Australia, 2012.

Academic Projects

Supplier – Retailer Shrinkage Management, LH Ventures **MSE Capstone Project (2016)**
Working with LH Ventures on a software development project in a team of 5. The focus is on learning how to manage software development, acquiring skills like project tracking, designing architecture, managing risk, quality and configuration.

3D Object Reconstruction from Hand-Object Interactions **Computer Vision (16-720) Course Project (2016)**
Implemented the 2015 ICCV paper of the same title by Tzionas et al. for the Computer Vision course project. A symmetric, texture-less, feature-less 3D object was reconstructed from 2D images of the object being rotated by a hand. The point cloud of the hand was used to register the object point cloud.

Object Detection using CIFAR-10 database **Machine Learning (10-601) Course Project (2015)**
Implemented and evaluated three machine learning algorithms to detect objects in the CIFAR-10 database – SVMs, Neural Networks, Logistic Regression. Best accuracy of 59% was achieved by using RBF kernel in a SVM.

Relevance Feedback using Gesture Recognition **Undergrad Final Year Project (2011 - 2012)**
Conceptualized and implemented a search engine result optimization module to enhance the relevance of the search results. The query was reformulated based on user feedback gathered non-intrusively through head gestures.

TwiTraffic – Traffic Updates on Twitter **Embedded Systems Course Project (2011)**
Developed before smartphones were common place, the project aimed to equip cars with sensors to estimate the traffic density at a given intersection, results of which were posted to Twitter to update other drivers.