Divyanshu Bhartiya

Software Engineer · IBM India Research Laboratory
A-407, Ananda Bairavi, Hennur Cross, Bangalore(India). 560084
(+91) 87-5570-8734 | divyanshu.vibhu@gmail.com | DivyanshuBhartiya | divyanshubhartiya

"Someone's dream is someone's reality."

Education

IIT Kanpur(Indian Institute of Technology) — *Kanpur, India*

B.Tech - M.Tech. Dual Degree, Computer Science and Engineering — *July. 2010 - June. 2015*

- M.Tech Thesis: Visuo-Motor Self Discovery towards a Spatial-Cognitive Map
- M.Tech CGPA: **9.2/10.0**
- B.Tech CGPA: **9.5/10.0**

Hartmann College and Woodrow Senior Secondary School — *Bareilly, India*

Senior Secondary and Secondary Education — *2008, 2010*

- Class X (ICSE) : **97.0%**
- Class XII (AISSCE): **94.8%**

Experience

IBM India Research Laboratory — *Bangalore, India*

Software Engineer — *July. 2015 - Present*

- Part of the **Smarter Education** Group, working on **Learning Content Hub** and Text Analytics
- Using educational content,working on providing services like annotators and recommendations for students and teachers

Microsoft India Development Center — *Hyderabad, India*

SDE Intern — *May. 2013 - July. 2013*

- Finding Changesets across Multiple Branches in **TFS Source Control Management**
- Developed a **Server Level StoredProc** to improve efficiency and reduce **MTTR** between two product releases
- **ELS Client VSIX Installer** and Updates Facilitation on Private Gallery
- Created an **Atom Feed** to provide updates and reduction of conflicts between service and client bits

Summer Undergraduate Research Grant for Excellence, 2012 — *Kanpur, India*

Research Fellow — *May. 2012 - July 2012*

- **Scientific Computing with Map-Reduce**
- Part of **Summer Undergraduate Research Grant for Excellence, 2012**
- Implemented Matrix Multiplication, Determinant, LU and Cholesky Decomposition as **Map-reduce** jobs on a **Hadoop** cluster

Publications

Automatically Generaing Discussion Questions — *AIED, 2013*

David Adamson, Divyanshu Bhartiya, et.al — *Dec. - 2012*

- Use of **LSA, Jaccard Coefficent , TfIdf and Cosine distance** for extracting meaningful, subjective and abstract representative sentences of chapter using summary as the basis, and using Heilman's tool to for question generation
- To encourage discussion and reasoning, with the intelligent tutor, ranking of questions by using **SentiWordNet**.
- Work done at **IPTSE Winter School**, organized by **CMU** at Bangalore, in Dec'12

A Visual Sense of Space — *BICA 2015*

Divyanshu Bhartiya, Amitabha Mukerjee — *Jan. 2014 - Jun. 2015*

- Discovering the **Visual Generalized Coordinates** from the images captured by a robot, homeomorphic to the parameter space of the robot
- Explaining how cognitive systems build an **allocentric** map around them, and discovering place cells and orientation cells
- Using the generalized coordinates for localization and navigation

Projects

A Semantic Approach to Summarization

Aug. 2013 - Nov. 2013

- Frames were created from each sentence with **Semantic Role Labelling**, preceded by POS tagging and pronominal resolution
- Created **connected components** using the synsets hierarchy in **WordNet**, and obtaining best representation of each connected component based on various features and heuristics

Learning Emotions from Text

Jan. 2012 - April. 2012

- **PLSA** used to get the document and topic probabilities, topic being the emotions, and folding in for a new instance of document
- Supervised Learning using POS tagging and looking up in emotion tagged dictionary, and scoring of the level of sentiment.

Movie-Rating Prediction System

Aug. 2013 - Nov. 2013

- Content based collaborative filtering, filling the ranking matrix by using **Naïve Bayes** and **Logistic Regression**
- Used **SVD** to generate a low representation of users and movies, finding the optimal low representation by cross-validation

A Feature based Correspondence Algorithm for Image Matching

Jan. 2014 - Apr. 2014

- Similarity measure detected between interest points detected using **Harris Corner detector** and weighted center of gravity, on the basis of correlation coefficient, implemented in Cuda
- An affine model was used for **Maximum Likelihood Estimation**, to estimate the degree of match (work based on Forstner 84)

ML Library in Haskell

Jan. 2013 - Apr. 2013

- Implemented **K-Means, LSA and KNN, Naïve Bayes**
- Implemented **HMM , SVM, Linear and Logistic Regression**

Partial Classes in Java

Jan. 2014 - Apr. 2014

- Design and support of partial classes in Java on the same lines as C#, supporting subclasses, interfaces and partial methods
- Developed a **pre-processor** that transforms the partial classes into midway Java programs

Tether Transpose

Aug. 2013 - Nov. 2013

- Android app for **reverse tethering**, second best project of the course
- Enables reverse tethering on rooted phones by making laptop as the gateway and a script for internet sharing on the laptop side

Android Mouse and Presenter

Jan. 2013 - Apr. 2013

- An android application to control mousepad of laptop , remotely connected with bluetooth
- Added features of scrolling and zooming and text box to send text to current cursor location

Scholastic Achievements

2013 **Academic Excellence Award**, Indian Institute of Technology, Kanpur
2012 **Academic Excellence Award**, Indian Institute of Technology
2011 **Academic Excellence Award**, Indian Institute of Technology
2010 **AIR 1155**, IIT JEE 2010
2010 **AIR 1396**, AIEEE 2010
2010 **AIR 65**, NSTSE 2010

Skills

Languages C, C++, Java, Python, MATLAB
Skills Git, Weka, ROS, Eclipse, Android, SQL
Teaching Tutor for Introductory Course of C (ESC101) in the first year for the academic curriculum at IIT Kanpur
Voluntary Activities Link Student and Student Guide as a part of **Counselling Service** team, IIT Kanpur