Brijesh Modi

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Research Interests

Systems & Computational Neuroscience, Machine learning, Cognitive Informatics

Education

Bachelor of Engineering   Aug 2012 — Aug 2016(Expected)

University of Mumbai

Majors - Computer Engineering
CGPA - 8.22/10

Higher Secondary Certificate (H.S.C)   Jul 2010 — Jun 2012

Ramniranjan Jhunjhunwala College, Mumbai

Majors - Physics - 90/100; Chemistry - 91/100; Mathematics - 95/100
Minors - Computer Science - 178/200

Work experience

Defence Research and Development   Feb 2016 — Present
Organisation (DRDO)

Research Intern

Working on a research project on spatial navigation under the supervision of Dr. Sushil Chandra, Scientist ' F ' & Head at Biomedical Engineering Dept., Institute of Nuclear Medicine and Allied Sciences (INMAS), DRDO.

OpenWorm Project   Jan 2016 — Present

Contributor

OpenWorm is an open source project dedicated to creating a virtual C. elegans nematode on a machine. I am currently working on the development of muscle model of Caenorhabditis elegans.
Website: http://openworm.org
My contributions in muscle_model: https://github.com/brijeshmodi12/muscle_model/

Indian Statistical Institute, Kolkata   Dec 2015 — Feb 2016

Research Intern

Worked under the supervision of Dr. Ashish Ghosh at Machine Intelligence Unit of Indian Statistical Institute, Kolkata.
+ Studied Multilayer Perceptrons, Support Vector Machines, Radial Basis Functions, Extreme learning machines and committee machines.
+ Currently writing chapters on the topics mentioned above.

+ Studied and demonstrated the vanishing gradient problem.
+ Developed a neural network for false currency notes detection

Brown University   June 2015 — Nov 2015
Research Intern

Worked under the supervision of Dr. Omar Ahmed to achieve the following goals:
+ Implemented Hodgkin Huxley models in both MATLAB and python
+ Studied the differences in response properties of distinct neuronal subtypes under different input regimes.

Kernl, Inc   Oct 2015 — Feb 2016
Senior Operations Analyst

+ Developed problem solutions by studying system capabilities, analysing alternative solutions.
+ Research and troubleshoot problems within the area of expertise.
+ Contributing to the development of re-engineering methods to improve processes, reduce risks,
increase controls and/or increase customer satisfaction.

Nuclei Technologies   Sep 2014 — Sep 2015
Founder

+ Building Products that automates the administration process for college students.
+ Conducting and organizing Developer Oriented Workshops.
+ Built and managed a team of 12 Interns from multiple colleges
+ **Products**
- **Cloud Concessions**. - An online portal that allows students to apply for railway concession. The first software of its
kind is currently being used by more than 1500 students to get railway concession. It is free for all students and
educational institutions.
- **Blog** "The Next Big Thing" - This blog features the upcoming technologies and new concepts in its simplest form. It
has attracted traffic from more than105 countries across the globe just within 3 months since its inception.

Startup Times   Sep 2014 — Sep 2015
Founder

A non-profit initiative by Núclei Technologies, is an attempt at encouraging the growth of start-ups and entrepreneurship
skills among the youth.
+ We Feature Startup Stories to motivate the young minds.
+ Featuring the various parameters of Startup Ecosystem.
+ Helping startups to get the best Human Resource for faster expansion.
+ Bringing various internship opportunities for students in evolving startups.

TEDx Gateway Campus Connect   Mar 2015 — Mar 2015
Organizer, Core Committee

Started TEDx Gateway initiative program 'Campus Connect' for the VES Institutes, first time in the history of VES.

The VESIT Entrepreneurship Cell   Aug 2014 — May 2015
Sr. Technical Officer

+ Organized the first TEDx Gateway Campus Connect in college.
+ Designed and executed more than 7 inter collegiate events.
+ Involved in organizing events to promote the Entrepreneurship among young minds.

Tantra-Gyan India Business solutions   Jan 2014 — July 2014
Software Engineering Intern

+ Developed an Enterprise Resource Plan and Online exam system using CodeIgniter Framework in PHP.
+ Back-end and Database Designer for various applications and projects undertaken by TG
+ Developed the following two projects during my internship period
- Virtual office [E.R.P]

- Online Test System.

Vivekanand Seva Mandal, [NGO]   May 2013 — May 2015
Application Developer

+ Working voluntarily for a Non Governmental Organization and thus promoting computer education amongst student
+ Involved in Developing applications for an Engineering Library which is run by Vivekanand Seva Mandal
+ Conducted a workshop on LAN technologies and setting up of LAN for around 40 students.
+ Helping and assisting students to grow on technical front.

Computer Society Of India - VESIT   Sep 2013 — Apr 2014
Junior Web Editor

+ Involved in designing the wireframes for the website of CSI-VESIT.
+ Assisting in all events conducted by the council .The council conducted 23 events throughout the year.
+ Conducted workshops on PHP/MySQL and PC Assembling,
+ Teaching Assistance in workshop on FLASH and .NET Framework.
+ Participated in sponsorship drives to various locations in Mumbai to get sponsorship for events.
+ Helping the council in the operational works for the events.

Notemybook   Jan 2014 — July 2014
Technical Advisor

+ Involved in sharing Technical Ideas with a startup 'notemybook.in'.
+ Developed the User Interface for the Brand new look of notemybook.in
+ Assisting this web based startup to grow deeper roots in the web.
+ Involved in monitoring the technical requirements of the company and providing appropriate solutions for it.

CareerFest 2013   May 2013 — June 2013
Supervisor and Voluteer

Career Fest ENG. 2013 was an Off- Campus Placement Program which provides placement opportunities for many graduates. The event took place on 29 & 30 June,2013 in Dombivli which attracted 1200+ students to take the advantage of this placement program.
My Responsibilities included :
+ Setting up LAN Network for registration desk .
+ Managing the Registration desk over the entire event.

Selected Projects

Conductance-based modelling and optimization of distinct neuronal subtypes using Matlab & Python.
Implemented and optimized Hodgkin Huxley models in Matlab and Python. Alsostudied the differences in response properties of distinct neuronal subtypes under different input regimes. This project was developed during the research internship at Omar Lab under the supervision of Dr. Omar Ahmed.

Stock Market Prediction using Machine learning in Python.
Parsed Yahoo Finance and used Quandl's API in Python for gathering the financial ratios and statistics.
Used Python Programming to do machine learning with Support Vector Machines and learnt how to use Linear SVC to determine whether a stock is likely to outperform or not.

Multi Document Text Summarization - Final year dissertation
Studied various abstractive and extractive techniques of text summarization. Designed and implemented a new framework for multi-document text summarization as a real time application. Designed a novel algorithm for multi-document text summarization.

Cloud Concessions - Online portal for railway concessions

Designed and developed a platform for students and colleges to automatic the process of getting railway concessions via cloudways. It is currently used by more than 1500 students and is still in its expansion phase. Technology used: CodeIgnitor Framework in PHP, Bootstrap, HTML, CSS, JavaScript, MySQL

Virtual Office - Enterprise Resource Plan
 Virtual office is an ERP which helps managing all the resource of a Chartered Accoutants firm. It consists of the modules like Employee management, Tasks management, Client management , Meeting management etc. I have developed the CRUD functions for Employee module using CodeIgniter in PHP.

Online Exam System.
Online Exam systems is a web portal which provides practicing for competitive examinations like Union Public Service Commision (UPSC) , MPSC and Banking exams. The key features includes :
1. Simple and Neat User Interface.
2. A complete report module which generates all statistics and reports about each student in each test and then suggests the appropriate areas of improvements to build a good score.
3. Automatic Test Generation Module which generates tests including non repetitive questions and instantaneous report generation.

Human Trafficking website
A website to spread the awareness and educate people about human trafficking. This website includes key features like login and registration, file a complaint, suggestion box. it was developed in just 2 days of time during an intercollegiate hackathon "Algorithms 1.0" . We finished as the **1st runner up** in the competition.

Library mangement for an Non-governmental organisation
Library Mangement System based on HTML, CSS, JQuery, AJAX, Javascript, PHP and MySql is now running in an Vivekanand's Engineering library. All the records of students, transactions, calculation of fine, registering a new member in library is now managed on this Web application.

Library Automation using Radio Frequency Identification (R F I D):
Library Management using RFID is a project for 'Learning Beyond Syllabus Program in Vivekanand Education Society Institute of Technology. The Project involves using of wireless communication between RFID reader and tags to read the information about the books used in Library. It also requires languages like PHP, SQL for backend of the library search engine. On long term basis it covers the development of an Android application which allows students to remotely check the availability of books in library.

Publications

1. Amol T, **Brijesh M,** Shreya W, Priyasha G, Sujata K. Multi Document Text Summarization - A Survey [Accepted in Sapience 2016, an international IEEE conference on Data Mining and Advanced computing.]

2. **Brijesh M**, Nilesh T, Nisha S. Human Microchip Implantation - A paper on Positive ID and its applications.[Unpublished]

3. **Brijesh M**, Gowri A, Amol T, Lakshmi A, Sankalp K. Library Management System using RFID Technology [Unpublished]

Teaching Activities

1. Conducted two workshops of duration 8 hours each on PHP and MySQL for Nuclei Technologies.

2. Conducted a workshop on Local Area Network(LAN) for 40 students during my service at Vivekanand Seva Mandal (NGO). Covered the basics of LAN and helped students to get the hands on experience of setting up a LAN in a building using Networking devices.

3. I was selected to conduct a laboratory session on Web Technologies on the occasion of Teacher's day (5th Sept 2015).

4. Conducted workshop on PC Assembly and PHP/MySQL for Computer Society of India (CSI)- VESIT. I was also a Teaching Assistant during .Net Framework and Flash workshop conducted by CSI - Student Chapter VESIT.

5. Teaching Assistant during a workshop on JAVA and Android Programming organized by notemybook.com

Invited Talks

2016 - VESIT Research Forum, University of Mumbai, India

Scholarships

Rajkorbhai Bhagwankala Trust, Mumbai [Year:- 2012, 2013, 2014, 2015]

Shri Goghari Dasha Shrimali Gnyati, Mumbai [Year:- 2012, 2013, 2014, 2015]

Shri Gohilwad Dasha Shrimali Vanik Mandal, Mumbai[Year:- 2012, 2013, 2014, 2015]

Certifications

+ Introduction to Computer Science and Progamming using Python from Massachusetts Institute Of Technology (MITx on edx.org)
+ The Data Scientist's Toolbox by John Hopkins [coursera.org]
+ R Programming by John Hopkins [coursera.org]
+ COMPTIA Certified A+ Hardware Technician from NIIT .
+ COMPTIA Certified N+ Network Engineer from NIIT .

Other Courses

+ Fundamentals of Neuroscience - Harvard University - mcb80x.org
Instructor: David Cox, Winston Yan, Nadja Oertelt

+ Machine Learning - Stanford University - coursera.org
Instructor: Andrew Ng

+ Neural Networks for Machine Learning - University of Toronto - coursera.org
Instructor: Geoffrey Hinton

Skills

- **Programming languages** : C, JAVA , Python and R Programming, MATLAB
- **Web based languages** : PHP, HTML5, CSS3, Javascript, Jquery
- **Frameworks Used** : Bootstrap(Frontend), Codeignitor(Backend)
- **Design Architecture** : Model view controller (MVC architecture).
- **Database** : MySQL
- **Software Used** : NetBeans, Eclipse, Canopy Python Editor, FileZilla, WorkBench, WAMP, XAMPP, Phpmyadmin, Sublime text., PhpStorm, PyCharm.

- **Operating Systems:** Windows, Ubuntu

Achievements

+ Finished in **top 10 amongst 25000** in C and FOSS Python Competition by University of Mumbai.

+ Secured Rank **301** in Codevita 2015 - a competitive coding competition organized by Tata Consultancy Services

+ **1st Runner Up** at Algorithms 1.0 intercollegiate hackathon organized by AIKTC - Programmers club.

+ Secured **Rank 402** in a International Coding Competition organized by Tata Consultancy Services.

+ **1st Runner up** in intra collegiate project presentation competition organized by ISTE- VESIT.

+ 2nd Runner up in IoT 2015 - an intra collegiate poster presentation competition

+ Received a call letter from **INDIAN NAVY** for the post of **Sub-Lieutenant** amongst candidates all over India on merit base.

+ Represented Don Bosco's Football Team in an Inter-School tournament organized by **Mumbai School Sports Association.**