PRANAY SARKAR

Date of Birth: 12/01/1991 | **Place of Birth:** Balurghat, West Bengal, India
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OBJECTIVE

To work and perform quality work & research in the areas of my interest to enrich and enhance my existing knowledge so that I can contribute significantly in those fields.

ACADEMIC & RESEARCH INTERESTS

Distributed Systems, Sensor Networks, Software Defined Networks, Network Security, Operating Systems, Web Development.

ACADEMIC QUALIFICATIONS

- **Master's student, Distributed Software Systems, Depertment of Computer Science, (Fachbereich Informatik),**
  Technische Universität Darmstadt, Hochschulstraße 10 , 64289 Darmstadt, Germany.
  October 2014 - present.

- **Bachelor of Technology, Information Technology**   CGPA: 8.30/10
  Institute of Engineering & Management, Salt Lake City, Kolkata, India
  Graduated in May 2012

COMPUTER SKILLS

Programming Languages: C, Java, C++, Visual Basic, C#, Scala, Python, JavaScript, Haskell.
Database: SQlite, Redis, MS-SQL, MySQL, MongoDB.
Web: HTML, PHP, JavaScript, ASP.NET, JSP, Java Servlet, jQuery, JSON.
Tools & Products: Git, SVN, Eclipse, PyCharm, Tomcat, ActiveMQ.
Other Technologies: REST, SOAP, RMI, JMS, Docker, BIND 9.

INTERNSHIP

1. 6-week training course at HCL-CDC (Career Development Center) on ASP.NET
   [July '11- August'11]

RESEARCH PROJECTS

1. **Botnet Surveillance System (BoSS) Infrastructure (Projectpraktikum/Research Internship)**
   Instructor: Shankar Karuppayah   (*shankar.karuppayah@cased.de*), Researcher @ CASED.
   Duration: 6 months (Oct'14 - Mar'15)   [As *Projectpraktikum* in Winter'14-'15 Semester]
   Description: We built fast, secure, fault tolerant backend infrastructure to deal with nodes which crawl the internet to get information about the vulnerabilities of network end points (or nodes) which already deploys botnet like sality. It uses also DNS based load balancer. Input and output are based on a '*Disruptor*' technology which can handle 6 million client per minute.

Currently we are expanding and doing fine tuning the system in order to publish a research paper.
Technologies Used: Java, SQLite database, Redis Database, JSON, JSP, Bind9, Docker, JSP, Apache Tomcat, Python, MongoDB.
Demo Site: http://demo.boss.botnet.my/

2. Lock Free Data Structures
Instructor: Dr. Guido Salvaneschi (*salvaneschi@st.informatik.tu-darmstadt.de*)
Duration: 6 months (From Apr'15 - Sept '14) Implementation of Programming Languages Lab]
Description: Performance comparison of existing lock free data structures of Java and Scala was done with the motivation of creating more efficient lock-free data structure than the existing ones.
Technologies Used: Java, Scala,ScalaMeter, GNU Plot.

SEMINARS

1. Time Management for University Students
Instructor: Christian Meurisch (christian.meurisch@tk.informatik.tu-darmstadt.de)
Duration: 3 months (Jan'15 - Mar'15)   [As *Seminar is Tele-cooperation*]
Description: We looked into the need of proper time management for any student by using computer assisted time management techniques, specifically, Android apps in mobile devices. One month of collected data is used for analysis it was derived that proper time optimization can help the student to complete studies and other tasks as per priorities.
Android apps Used (for data collection purpose): Labels, Kraken.me

ACADEMIC PROJECTS

1. **Distributed Publisher/Subscriber based Multiplayer Snake Game**
Project Duration: 2 months (April '15 - May '15) [in Ubiquitous / Mobile computing]
Project Description: A multiplayer snake game based on Umundo middleware. There are two apps: A. One desktop only Java based app, B. Another android app. Umundo handles interconnection between all devices in the created network.
Technologies used: Java, Umundo, Android 5.0
GitHub Link: https://github.com/pranay22/tu-darmstadt-TK3/tree/master/Assignment1-Umundo_Snake

2. **.NET micro-framework based Single/Multiplayer Mastermind game, for .NET Gadgeteer**
Project Duration: 1 month (May '15 - June '15) [in Ubiquitous / Mobile computing]
Project Description: A Single/Multiplayer mastermind game based on Microsoft .NET micro-framework, made for Microsoft .NET Gadgeteer device. Mode can be selected during startup or upon pressing RESET button. In Multiplayer mode, user can choose secret code for other user.
Technologies used: C#, .NET framework, Microsoft .NET Gadgeteer platform.
GitHub Link: https://github.com/pranay22/tu-darmstadt-TK3/tree/master/Assignment2-Gadgeteer

3. **Ubiquitous Seat Monitoring & Management System with prediction facility**
Project Duration: 1 month (June '15 - July '15) [in Ubiquitous / Mobile computing]
Project Description: Remote controlling, monitoring seat management system for any room which have a networked camera and many seats. This project have five parts: Node module, Image detection, Database connector, WebServer and Prediction Algorithm.

Technologies used: C++, Python, Java, PHP, Javascript, MySQL, MySQL connector for C++, MySQL Connector for Python, Apache Webserver, PHPMyAdmin.
GitHub Link: https://github.com/pranay22/tu-darmstadt-TK3/tree/master/Final%20Project

4. **Visualization of CSMA/CD Protocol**
Project Duration: 4 months (April '15 - July '15) [Communication Networks 1 as Course Project]
Project Description: In this project CSMA/CD, media access protocol, used in data link layer in LAN topology, is stimulated using Java. Different clients are stimulated by using Java threads.
Technologies used: Java, Java threading technology.
GitHub Link: https://github.com/pranay22/CSMA-CD

5. **Audio Based Probing of the Environment**
Project Duration: 5 months (Oct '14 - Feb '15) [Communication Networks 2 as Course Project]
Project Description: Audio based probing using Gaussian noise. At least two devices required. One device works as server and rest as client. Wifi-direct used to create peer-to-peer network. Client/Server option can be chosen at home screen. Available for Android 4.1 and above.
Technologies Used: Android 4.1 or above, WiFi-Direct, Java.
GitHub Link: https://github.com/pranay22/Audio-based-probing-of-the-environment

6. **Fly Hunt game with RMI**
Project Duration: 1 month (From Oct '14 - Nov '14) Distributed Systems(TK1) Project]
Project Description: Client server game, communication done via RMI. In GUI a fly appears and flies at random direction. If user clicks on the fly, point increases. Higher point user wins.
Technologies Used: Java RMI, Java Swing.
GitHub Link: https://github.com/Dibyojyoti/OnlineGameWithRMITech

7. **Microblog base on publish-subscribe system using ActiveMQ and JMS**
Project Duration: 1.5 months (From Dec'14 - Jan '15) Distributed Systems(TK1) Project]
Project Description: A pub-sub based microblog where user can post messages with hashtag. Users can subscribe to users or tags. ActiveMQ used as message broker.
Technologies Used: Apache ActiveMQ 5.6.0, JMS, Java, Java Swing.
GitHub Link: https://github.com/Dibyojyoti/PublishSubscribeSystem

8. **Mini Online Shop**
Project Duration: 1 month (From Feb'15 - Mar '15) Distributed Systems(TK1) Project]
Project Description: A java based online shop with 2 types of web servers: RESTful and SOAP. Which server to use, can be selected by the user.
Technologies Used: Java Web Technology - REST, SOAP, XML.

9. **Implementation of Bluetooth Hotspot**
Project Duration: 5 months (Jan '12 - May '12) [In 8th semester project work (IT883)]
Project Description: There are 2 parts of this project. Software (for PC) - works as server for hotspot and an app (for mobile running on Nokia Symbian S40/60 OS or any other mobile OS that have support for Java programs) as client. Bluetooth is used as communication medium between server & client. RFCOMM protocol from Bluetooth stack as medium of connection.
Technologies Used: Bluetooth API, Java.

10. **Online Blogger Suite - BlogB**
Project Duration: 1.5 months (July '11- August'11) [During 6 week internship at HCL-CDC]

Project Description: An online blogger suite accessable to oonly registered users. Comment on written articles and 'voting up' is also possible. Designs were done in HTML.
Technologies Used: HTML, ASP.NET, MS-SQL, Microsoft Visual Studio 2010 Suite

11. **Online Library Management System**
Project Duration: 4 months (Jan '11 - April '11) [During 6th Semester (IT694) DBMS Lab]
Project Description: Library management system with Java frontend. It keeps a log of all present books in the library, list of lent books and their renewal/return date. Extension of renewal, adding new books, online reading (if marked) is also possible. Database is made using Oracle 10g.
Technologies Used: Microsoft Visual Basic, Oracle 10g

12. **Login & Management System for Cyber Cafe'**
Project Duration: 4 months (August '09 - November'09) [(CS392) Data Structure Lab].
Project Description: The system can monitor amount of time user is using a particular PC and amount of data used. User can get ID & Password for a given period of time after payment. After that allowed time, user will be automatically logged out. A *management interface* for the owner of the cyber cafe' is also included where number of logged in user, there browsing and download history can be seen.
Technologies Used: Microsoft Visual Basic, MS SQL.

ADDITIONAL PROJECTS

1. **BitsB v1.1**
Project Duration: 28 Months (January '10 - April '12)
Project Description: A PHP base peer-to-peer document sharing website with PHP based centralized tracker. Also have advanced forum and live chatting feature. Some parts are also written in JavaScript. Centralized design done by CSS. SQL live query optimization and caching is done by Memcached (https://code.google.com/p/memcached/)
Technologies used: PHP, JavaScript, jQuery, MySQL, Apache, Memcached, CSS
GitHub Link: https://github.com/pranay22/BitsB1.1

CERTIFICATIONS AND TRAINING

1. Cisco Certified Network Professional (CCNP)   [Verification No: 414863551045EQXG]
2. Cisco Certified Network Associate (CCNA)   [Verification No: 413673636595COUG]
3. Cisco Certified Entry Networking Technician (CCENT) [Verification No: 413385800623GOBF]
4. Microsoft MCSE 70-480 (HTML & JavaScript)   [Certification Number: E156-0155]

HONORS AND AWARDS

1. Ranked 18th Secondary exam in West Bengal, India in 2008.
2. Awarded with certificates from IBM for basic education in Computing during 2005-2006 time period.