

Ashutosh Pathak

Bachelor and Master's in Computer Science & Engineering

Dual degree from Indian Institute of Technology Kanpur 2004-2009

+91-9911656022

atp.iitk@gmail.com

Awards & Summary

- Research publications on **Probability density function estimation for video in the DCT domain** *Proceedings SPIE Conference on Image Processing: Algorithms and Systems VI, San Jose, CA, Vol. 6812, January 2008, p. 68120L:1-9.*
- Has secured All India Rank **416 in Indian institute of technology Joint Entrance Exam** in 2004 for selection in premier engineering and research colleges in India, Also secured the **Top 1% in International Physics Olympiad**.

Work Experience

- **Software Developer, MoveInsync , (Mar2015 , Ongoing)**
 - Built inmemory cache using **Redis** for various data that is frequently queried. Application is built in **JAVA EE** and some services are written in spring hibernate .
 - Optimised mysql queries for **JAVA BIRT** reporting for mysql .
 - Handeled java memory leaks using jconsole, JHAT by enabling jvm options for heap outputing and gc logging which get displayed in eclipse console or production logs.
 - Worked on business logic development to create application multi tenant. Previously they have to deploy application for every customer.
 - Experiance in handling big **JavaEE** application with maven repos and using jms ,junit and tomcat server.
 - Experienced with large data sets and complex data structures Proficient in enterprise software development including significant experience in mid-tier and front-end web application development .Solid understanding of cloud service design patterns and ability to write clean, concise and maintainable code.
- **Senior Software Developer, Limeroad.com , (Jun2012 -Oct 2014)**
 - Limeroad is a leading Ecommerce company in woman products having a team of technical people from facebook and google. I am among the top 5 member founding engineer team who helped in building website, services and backend admin portal for Limeroad.com.
 - Built the backend portal for content writers , data entry team and vendors to upload products , wrote a content serving **JAVA** service to read live products from Solr and Redis and serve the frontend query for listing and searching . System has more than 1000 vendors , there is an average 400 products upload/update per vendor every day.
 - Designed and coded from scratch backend bussiness logic and schema for brands, products upload, inventory creation, image upload and pricing changes for backend admin portal from scratch. System can generate new IDs for different batch and brand. Portal was written in **PYTHON Django**.
 - Developed a login/authentication service in **JAVA Spring** with google OAuth , Facebook OAuth SDK. Optimised for asking required permission based on facebook actions. Also stored user's facebook friendlist to invite friends for sign up credits.
 - Developed a content serving JAVA service which handle the front end request for product listing and searching. Also wrote single handily product listing with infinite scroll and auto complete search functionality powered by solr for front end website.
 - Front-end development experience with Ruby frame work like Rails and JavaScript frameworks and template libraries such as AngularJS, **JQuery**. Has sufficient knowledge of HTML and CSS . Did small UI work to integrate gogle analytics to capture user events and added support for handling marketing campaign parameters.
 - Developed tag based product search and navigation which currently no other Ecommerce companies are doing in India. Tags are added by data entry team for better purchasing experiance for user.
 - Wrote a basic **Machine Learning** algorithm to show new products at the top of the listing along with most sellable old products based on score generated with the help of google analytics . Also showed relevant products of same color and category in the individual product page with help of decision tree .
 - Worked on the nosql database like mongodb , solr for serach on indexed documents using n-grams and redis for cached product information. Familiarity with nosql database and data stores such as **Redis, CouchDB, Cassandra or MongoDB**. Worked on mongo master -slave configuration, mysql read-write replica and solr multi cores for zero downtime update.
 - Developed queuing based architecture for faster product updates to **Solr** and to handle other activities by vendors and data entry team using Gearman job server. System can automatically increase more workers based on the current pending task in queue.**Gearman** is distributed, fault tolerant queue based job server. Vendors can see the live status of how much their task has completed .
 - Handled the infrastructure issues like elb for server load, **amazon rds** for database. Did A-B type testing for ui changes and record the information in **google analytcs**.
- **Software Engineer, Literaturebay.com (Jan 2011- April2012)**

- Developed a website for selling secondbooks and upload ebooks to share with friends using cakephp framework and solr , mysql DB.
- Built facility to convert ebooks of differnet format For example can convert old microsoft rtf ebooks to epub format.
- Built search facility for ebooks name and short summary using Solr. Built system to remove duplicates names in books listing.
- **Member Technical Staff ,Oracle, (July 2009- June 2010)**
 - Designed a cloud based patching environment using open source tools like eucalyptus cloud on KVM and xen Virtual machine images(VMs). Cloud based patching framework was used for patching oracle updates to customer boxes.
 - The use of cloud was to utilize the computing environment effectively and the VMs are used to apply patches on backup copy rather than on running system. Work involved experimenting with different network mode like V-lan mode etc, bridge mode and NAT rules.
 - I designed a tool through which the network bandwidth between different VMs can be controlled using iptables and ebtables and HTB(hierarchical token buffer)for effective bandwidth utilization. Patching mechanism was similar to Rsync.
 - Worked on a restore and recovery datacentre project. The aim was to fragment the large system image files into m smaller size files and recreate the original system images from $l \leq n \leq m$ splited files. This was done using famous Jerasure encoder and decoder library. I even make it multi threaded for better performance benefit.
 - I have also undergone the java j2ee training in oracle university.
- **Mtech Thesis , (April2008-July2009)**

” **DTW based Online signature verification using adaptive global constraints** ”. Supervisor :- Dr Phalguni Gupta . Online signature has lot of dynamic features like velocity, acceleration etc. DTW based algorithms are usually good for matching time series but due to there $O(n^2)$ time complexity real time matching is not very responsive on very large timeseries. Using global constraints runtime of algorithm can be reduced significantly. Work involved biometric data and pattern recognition techniques.
- **Research Publication :-**

INSTITUTE NATIONAL DES TELECOMMUNICATIONS (INT),Paris, France (may - July 2007). During summer internship in the 3rd year of college, I got the opportunity to work on robust Watermarking Techniques on videos & Study the different kind of attacks to compromise the watermarking. Work involved Signal theory, DCT and Wavelet Transform, X.264 codecs, and fast processing of video frames. **Achievement:-**Suggested blockwise DCT transformation & better data Structures result in improvement. Finally the paper was presented in the ”**SPIE Conference on Image Processing: Algorithms and Systems VI January 2008**” with the help of my supervisor Dr Mihai Metria. I received the appreciation and invitation for the conference in california.
- **Similarity Search in Time Series Database**

Aim was to implement the technique for fast retrieval and search similar time series in large video & audio database . Dynamic Time Warping(DTW) method is studied for searching KNN(K^{th} nearest neighbor) quarries on original multidimensional data and dimensionality reduction was done using PCA .
- **Offline Biometric Signature Verification**

Developed a signature verification system using SVM(Support Vector Machines) which can be used for scanned images of signature of person. Maximum Accuracy achieved was 80% in skilled forgery and 83% in random forgery. Code was written in matlab.
- **Teaching Assistant(TA),Core JAVA Language, (Jan 2009-April2009)**

Responsibilities included designing lab assignment in JAVA for 1st year students. checking copies, updating marks in course website.
- **Teaching Assistant(TA),Computer Organization course , (Aug 2008-Dec2008) ***

Responsibilities included advising weak students, designing assignments and helping the course students in implementation of ALU , Regfile, Ram , CPU in Spartan series 3 FPGA Board in Hardware lab using xilinx IDE and verilog language.

Skills

Languages: C/C++, L^AT_EX, Java,C#,Php,ruby,bash, perl, python shell scripting,UML,, Linux Assembly ,xml, Sql.

Operating Systems: Linux (Redhat , Ubuntu ,Fedora), Solaris, Windows 95/98/NT/2000/XP

Applications and IDE: Mathematica, MatLab, Visual Studio,Eclipse, Xilinx, Jedve, Netbeans, GCC debugger, OpenOffice, MS Office XP ,Ruby on Rails, LAMP, Apache Web Server, Mysql, Oracle, Lex , Yacc,Doxygen, Gnuplot.

Web framework and Web Server: Cakephp, Django, J2ee, ruby on rails , cakephp ,node.js, maven jetty, node.js , nginx, apache , tomcat jetty ,Spring, Hibernate, JUnit.

Databases solr, redis, mongodb, mysql, neo4j, oracle, postgresql .

Open source tools and libraries Rabbitmq, Gearman ,Google app engine Calls, Amazon S3 api, twitter API, Worked in Open Source **Cloud platform** Eucalyptus and Jerrasure encoder decoder **Multithreaded** library written in c . Worked in C/C++ ,**boost**and **Unix Posix thread library**. Has related Experience in debugging large projects using **Doxygen** , raising tickets in community forum and IRC chat. Git, SVN, HP loadrunner, QTP loadrunner, Buildbot ,sendmail ,Maven, Jenkins, Tomcat, Hudson, TeamCity.

Paid Technologies Amazon ec2 instances , rds , S3 , newrelic, heroku, Facebook App SDK, Salesthrough,Mixpanel,Pingdom.

Interests And Extra Curricular

Academic: systems, os, network, databases, new web based technologies, micro controllers, Finance .

Sports: football ,swimming. was in Institute swimming team during 1st year at IITK.

Other: IPO, Stocks and commodity trading, mountain tracking .