DHEERAJ SACHAN

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EDUCATIONAL QUALIFICATIONS

Year	Degree	Institution(Board)	CPI/%
2013	Bachelor of Technology (Electrical Engineering)	Indian Institute of Technology , Kanpur	7.9/10
2008	XII	M.T.M.H.S. School, Kanpur	90.4%
2006	X	M.T.M.H.S. School, Kanpur	93.5%

SKILL SETS

- Programming Languages : PHP, Java, Javascript, HTML, Action Script, C, Matlab
- Databases : MySQL, SQLite, Redis, MongoDB
- Tools & Technologies : Ember JS, FFMPEG, JavaFX, Yii, OpenCV, JavaCV , Amazon EC2 API, Amazon S3 API, Google API, Flex, Maven, Spring, git, SVN, apache2, nginx, Adobe Access for Digital Rights Management, Wowza Media Server
- Software Skills : Adobe Premiere Pro, Adobe Photoshop
- Operating Systems :Windows, Linux, Android
- Integrated development environment : Eclipse, IntelliJ, PhpStorm, Flash Builder

PROFESSIONAL EXPERIENCE

Software Engineer, Aurus Network (www.aurusnet.com, superprofs.com) June 2013 to Present

- **Desktop Streamer Windows Application for live streaming and recording of PC screen**

- Application was designed to help teachers to share their presentations to live audience
- Used **Java and JavaFX** for programming and GUI designing of the application
- **Screen Capture Recorder** was used for creating a virtual device from desktop screen
- **Flash Media Live Encoder** was used for live streaming to a **Wowza Media Server**
- **NSIS (Nullsoft Scriptable Install System)** was used for making windows installer

- **Windows Application for H.264/AAC Video Encoding and Uploading to FTP Server**

- Application was designed to encode and upload a batch of videos using **Java** and **JFX**
- Used **FFMPEG** for video compression and java apache FTP library for uploading files
- Used java **multithreading and concurrency** for simultaneously performing compression and upload tasks
- Used **SQLite** saving status of upload jobs, so that they could be resumed from their previous state in case of machine shutdown or loss of network

- **XMPP controlled Android application for live video streaming**

- My responsibility was to work on Audio/Video capture from device and compression in **FLV1 (H.263)/AAC** format
- Used **JavaCv, JavaCPP (OpenCV and FFMPEG** wrappers for android**)** along with android API to capture compress and **live stream** audio video to **Wowza Media Server**
- Implemented logging to a remote server via socket appender to get real time device logs
- Implemented file encryption/decryption to secure compressed videos
- Compiled **FFMPEG** for android to enable android device to perform video processing on raw files
- Implemented SMS notification service using Exotel API

- **Developed a Video Transcoding server on Amazon EC2 C1-medium linux instance**

- Designed frontend for uploading raw video files to the http server using Yii framework.
- Compressed raw video files to H264 video codec and AAC audio codec using **FFMPEG** as video processing library and used **PHP** for server side scripting
- Implemented **Presenter Tracking in a Classroom Environment** to capture a fixed pixel window around teacher using **Open-CV** image processing library and **Viola Jones face detection algorithm**
- This feature could also take a live rtmp stream as input and implement tracking and re-stream the video
- Used **Amazon EC2 PHP-API** for starting server on demand and stopping it when not in use
- Implemented features for **editing, joining and cropping** videos

- **Android AIR/Flex application for live video streaming**
- Developed Android application to stream live camera feed from any device to a RTMP streaming server
- Used Adobe AIR and Flash Builder for development
- Used Sorenson Spark video codec and Nelly Moser audio codec

- **Offline Content Security using Adobe Access**
- Developed a video player for playing DRM protected offline media using Adobe AIR
- Used EZDRM - Adobe Access (www.ezdrm.com) for packaging content

- **Other Projects**
- Feature development and maintenance of web server running (PHP framework)
- Developed module for disconnecting users from **Wowza Media Server** on HTTP request
- Developed data migration server to transfer files between Amazon S3 buckets
- Developed an application for uploading videos to **Youtube** channel using **Goolge API**
- Developed a review and rating interface using Ember JS
- Developed a flash video player for playing secured online videos

- **GitHub projects github.com/dheeraj9198**
- Windows application for video/image compression with latest audio/video codes using ffmpeg, NSIS, Java and JavaFX
  INSTALLER - www.dropbox.com/s/x3ek58wbeldvdej/DVideoConverter.exe?dl=0
  SOURCE - github.com/dheeraj9198/DVideoConverter
- Personal website dheerajsachan.in
  SOURCE - github.com/dheeraj9198/Site

B. TECH PROJECT

Project Title : Multiple Face Detection and Recognition using Eigen Faces (Using Matlab)

- Acquired a training set of face images, resampled them to a common resolution
- Generated a set of **eigenfaces** by performing **Principal Component Analysis**
- Detected all **the possible face regions** image using **color segmentation** and **viola jones algorithm** and segregated them to a common resolution
- Transformed those images to eigen face components and got resulting weights vector
- If the **Euclidean distance** between new and other known average face was below the threshold value , we concluded that new image is a face
- Selected detected faces one by one and classified the weight pattern as either known person or unknown
- Tried face detection using **Template Matching** but it proved to be less accurate than above mentioned technique

INTERNSHIP AT TATA STEEL , JAMSHEDPUR FROM 7th MAY to 6th JULY 2012

Project Title : Power Consumption Reduction in Hot Strip Mill

- Explored the ideas for power consumption reduction
- **Prioritized** the ideas on the basis of impact and payback time
- Explored the scope for implementation of **Variable Frequency Drives** and **Static VAR Compensators**
- Studied the operation of Laminar Cooling Pump House and Descaling Pumps
- Devised the control parameters for controlling VFD using water level sensors and heat sensors for Laminar Cooling Pump House and Descaling Pumps respectively
- The project resulted in power saving of **14.28*(10^6) kWh**
- Power Saving resulted in monetary saving **of Rs. 4.14 Crore**

SCHOLASTIC ACHIEVEMENTS

- Secured All India Rank 1105 **(TOP 0.3%)** in **IIT-JEE** 2009 among 4,00,000 participants
- Secured All India Rank 1565 **(TOP 0.2%)** in **AIEEE** 2009 among 8,00,000 participants

RELEVANT COURSES

Fundamental of Computing, Introduction to Electronics, Signals Systems and Networks, Digital Signal Processing, Microelectronics-1, Microelectronics-2, Electromagnetic Theory, Power Electronics, Solid State Devices-1, Control System Analysis, Principles of Communication, Digital Electronics and Microprocessor Technology, Probability and Statistics