
Experienced Software Engineer with background in Media Streaming and Billing Systems along with sound project management and leadership skills looking for a challenging position in the field of multimedia technologies.

EDUCATION

Master of Science in Computer Science (GPA 3.5 / 4), University of Southern California May '04
Bachelor of Science in Computer Engineering (GPA ~3.7 / 4), Pune University, India June '00

PROFESSIONAL EXPERIENCE

Senior Engineer, YouTube.com, CA. Nov 05 - Present
One of the first engineers at YouTube, responsible for various features on the website and encoding of user uploaded videos.

Software Engineer III, Paypal.com (an eBay company), San Jose, CA. Sept'04 – Nov '05
Member of the PayPal software development team. Involved in design and development of projects like Internationalization, System Integration and Fraud management. Volunteered for various projects in improving development environment, like optimizing the build system, helping evaluate various intranet tools, and creating Firefox extensions.

JISP Software Engineer, Elitecore Technologies Ltd., India (www.elitecore.com) July'00 – June '02
One of the principal engineers of JISP Billing System (www.jispbilling.com), which is a flagship product of the company. Was involved in project coordination with JISP Customers and JISP Development Team for project design and deployment. Awarded the "**Best New Employee of the Year 2000**". Involved in the following modules:

- **JISP Application Server** using Java technologies like JDBC, RMI and Swing. The server is designed to be seamlessly compatible with MS-SQL, Oracle and DB-2 databases
- **Mediation Agents** to capture billing information from various network devices through SNMP using Sun's JDMK API.
- **Web based reports** using Servlets, JSP, RMI, JDBC, Jakarta Struts, Jakarta TagLib, Java Beans
- JISP Rating and Billing Engine using JDBC, IPDR, RADIUS
- **Management Console (GUI)** for JISP using RMI, SWING
- **JISP Integration Interface** through Web Services using Jakarta Axis
- **RADIUS Server** using C, LDAP

Intern, Center for Development of Advanced Computing, India Jan '00 – June '00
Team of three worked on design and development of "FileCon", **File Concurrency and Consistency Maintenance Software** for Win-9x Networks using VB 6.0 and Win32 SDK (Virtual Device Driver and Memory Mapped Files). The project maintained a replica of the selected files on other machines according to the configuration. It also detected when a file has been changed on a machine to automatically update all its other(remote) copies.

RESEARCH

Research Assistant, Data Management and Research Lab, Integrated Media Systems Center, USC Aug '02 – Aug '04
Advisor: Prof. Roger Zimmermann

- **HYDRA: High Speed Data Recording Architecture**
Designing a High Speed Data Stream Recorder on a modular, scalable architecture to record multiple, concurrent stream using unified algorithms that can accommodate both recording and playback with low latency.
- **Distributed Immersive Performance**
This project consists of multiple performers at remote locations able to play together in a concert. It requires extremely low latency audio and video with high quality playback for audience. I am involved in implementation of video-streaming module for this project. Commercial DV and HD cameras are used as video capture devices.
- **Remote Visualization in Head Mounted Display**
Performed an analysis for various options available for driving a HD quality Head Mounted Display. Both hardware and software options were considered, and a PC based prototype was developed.

Patent:

- **HYDRA: High Definition Live Streaming System**
Roger Zimmermann, Dwipal Desai
USC File No. 3535, U.S. provisional patent application serial no. 60/581,888, June 22, 2004.

Publications:

- **High Resolution Live Streaming with the HYDRA Architecture**
Roger Zimmermann, Moses Pawar, Dwipal A. Desai, Min Qin, and Hong Zhu.
Published in the ACM Computers in Entertainment journal, volume 2, issue 4, October/December 2004
- **Report on User Experiments in the Distributed Immersive Performance Project**
E. Chew, R. Zimmermann, A.A. Sawchuk, C. Papadopoulos, C. Kyriakakis, C. Tanoue, D. Desai, M. Pawar, R. Sinha, and W. Meyer.
Presented at 5th Open Workshop of MUSICNETWORK: Integration of Music in Multimedia Applications
- **Ethernet Interface for Head-Mounted Displays (Technical Report)**
Roger Zimmermann and Dwipal A. Desai.
USC Technical Report USC-CS-TR05-846, University of Southern California, 2005.
- **HYDRA: High-performance Data Recording Architecture for Streaming Media (Book Chapter)**
Roger Zimmermann, Kun Fu and Dwipal A. Desai.
Book chapter in Video Data Management and Information Retrieval, editor Sagarmay Deb, University of Southern Queensland, Toowoomba, QLD 4350, Australia. Published by Idea Group Inc., publisher of the Idea Group Publishing, Information Science Publishing and IRM Press imprints, 2004. ISBN 1-59140-571-8

ACADEMIC EXPERIENCE AND RELEVANT PROJECTS

- **Graduate Assistant, USC Graduate School**
Worked on system administration, website development and document management projects. Created a tool which can convert existing excel reports to a bookmarked PDF document using Macro Programming and VB.
- **IT Analyst, USC Bookstore**
Worked on system administration and website designing for the bookstore IT department.
- **Academic Project: Video Search Database**, Multimedia Systems Design Class
Team of two worked on implementation of a video search database. Video clips are stored along with their signatures based on the motion patterns, and new videos can be matched with ones in the database. The software was implemented using QT library for the user interface and OpenGL for rendering.
- **Academic Project: Soccer Gaming Engine**, Integrated Media Systems Class
Team of three worked on design and implementation of the Gaming Engine for soccer game in Visual C++ using the MFSM (<http://mfsm.sourceforge.net>) Architecture.
- **Academic Project: Distance Vector Routing Simulation**, Computer Communications Class
Implemented a simulator in C++ for Distance Vector Routing Algorithm. Created virtual routers that would communicate with each other using DV messages and establish routing tables.
- **Academic Project: Spatial Database Client**, Database Systems Class
Implemented a Java based GUI for querying Spatial Database based on Informix. The client displayed a map, and allowed users to search for various places on the map by using the GUI provided.

PERSONAL PROJECTS

- **JMIBBrowser: Java based SNMP MIB Browser** (<http://www.dwipal.com/mibbrowser.htm>)
JMibBrowser is a Java based SNMP MIB Browser. It contains its own MIB Parser that supports SNMP-V1 MIBs, and an SNMP Query Engine that supports GET and SET Methods. This software is released under GPL license.
- **Applescripts for iTunes** (<http://www.dwipal.com/itunes.htm>)
Add/Remove Groups
This is a group of scripts to provide addition/removal of groups to a song in iTunes. Grouped songs can be organized in playlists using Smart-Playlist in iTunes.

SKILLS

- **Languages:** C, C++, Java, Python, Visual Basic 6.0, Win32 SDK, Unix Shell Programming, Assembly Language (8085/86), COBOL, QT Library, OpenGL SDK
- **Databases:** MS-SQL Server, Oracle, MySQL
- **Web Technologies:** HTML, Servlets, JSP, Java Beans, ASP, Web Services (Jakarta Axis), XML
- **Application/Web Servers:** Apache Web Server, Jakarta Tomcat, MS-IIS
- **Development Tools:** MS Visual Studio 6, Borland JBuilder, Jakarta Ant, Macromedia Dreamweaver, Apple XCode
- **Misc. Tools:** MS Project, MS Visio, Samba Server, CVS, Clearcase, Apple Scripts
- **Protocols worked in:** RADIUS, SNMP, LDAP, SOAP (Web Services), RTP/RTSP

- **Operating Systems:** Windows (XP, 2000, 9x), Mac OS X, Linux, Solaris, AIX

OTHER ACTIVITIES

- Representative of ACES (Association of Computer Engineering Students) at D. Y. Patil College of Engineering, Pune.
- Formed the D. Y. Patil LUG (Linux User's Group) in year 1999 and gave various presentations on the Linux operating system.
- Active member of the USC Linux User's Group and Java User's Group.
- Vice President, External Affairs of AIS (Association of Indian Students) at USC.
- Rewarded with "Leadership Award" at USC due to the contribution towards student's organizations.