Amar Chandole

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Personal Details

Date of Birth	27th July, 1994
Gender	Male
Languages	English, Hindi, Marathi
Nationality	Indian

Objective

To learn, do inventive research and make the world a better place.

Research Interests

File and Storage Systems, Data Deduplication, Compilers, Networking, Network Security, Systems Programming, Algorithms, Database Systems

Academic Qualifications:

Qualification	Year	Percentage, GPA (4 point scale)	University/Institute
Masters in Computer Science	2016-2018 (Ongoing)	NA	University of California, Los Angeles
Bachelor of Engineering - Information Technology	2015 - 2016 2014 - 2015 2013 - 2014 2012 - 2013	74.27%, 3.79 74.47%, 3.80 74.80%, 3.80 79.64%, 3.78 (Average : 75.80%, 3.79)	Savitribai Phule Pune University (Pune Institute of Computer Technology)
H.S.C. (12th Grade)	2011-2012	86.0%, NA	HSC Board, Maharashtra (Deogiri College, Aurangabad)
S.S.C. (10th Grade)	2009-2010	96.55%, NA	SSC Board, Maharashtra (St. Lawrence High School, Aurangabad)

Pune Institute of Computer Technology (PICT), Pune, India
Bachelor of Engineering (Information Technology)

Relevant Coursework :
Operating Systems, Computer Organization, Data Structures and Files, Theory of Computation, Systems Programming, Computer Network Technology, Advanced Computer Networks, Design and Analysis of Algorithms, Database Management Systems, Distributed Systems, Advanced Databases.

Academic Projects:

1. **Content-based Storage Mode in Btrfs** (File Systems, Data De-duplication) (Senior Thesis)
   (Mentored by : Harshad Shirwadkar, Saurabh Kadekodi)

   The project implements content-based storage mode for the Btrfs file system. This project is also mentioned in the TODO-list of the Btrfs ideas page.

   In content-based storage mode, the data is stored on the disk only on the basis of hash of its content. A new b-tree named hash_inode tree is added to the tree of tree roots in the existing Btrfs source code. The hash (SHA-256) of the file is first calculated internally. A (key, value) pair of this hash (as key) and the inode number of the file stored on disk (as value) is then added to the hash_inode_tree. This brings in inherent deduplication at file level - as Btrfs must index the inodes by 256-bit hash values of the entire data they hold respectively, thus eliminating storing redundant objects again. The lookup is also hash based - thus extremely quick.

   Developed with the use case of content cache routers and CMU's XIA in mind. Also, other use cases like Amazon S3, Lustre and other systems using REST API.

2. **REST library for Content-Based Storage Mode in Btrfs**

   Developed a library that interfaces the REST API calls to the Content-based storage mode in Btrfs. Any REST API using system can easily store and retrieve data based on its content using this library in Btrfs.

3. **Benchmarking tool for Content-based filesystems**

   This tool assists in testing the I/O performance of filesystems working on the principle of Content-based Storage. Currently supports for filesystems that store & retrieve files using SHA-256 hashes of the content.

4. **University Result Analyzer** (Databases, Theory of Computation)

   Designed and developed a Java, MongoDB based software with an intuitive GUI that aims to facilitate easy data storage and analysis of University results. It used regular expressions to map different types of fields intelligently and parsed through the complete document with thousands of entries to populate the database. Comprehensive analysis of the results was also made available. This software served the Engineering Institutes across my University to process and analyze large-scale data of Exam Results, originally released only in PDF format.

5. **e-Booking application for Flight-Booking**

   Designed and built a web application for flight booking of multiple service providers through a common platform. This application was built using the LAMP stack. In addition, developed a suggester module based on a graph-based traversal of the connected airports to help generate meaningful suggestions based on connected entities.

6. **Technical Seminar - *'Bounded Degree Localized Geometric Planar Graphs for Wireless Ad-Hoc Networks'*** (Networking, Algorithms)

   Discussed a paper on Hypocomb family graphs in Wireless Ad-Hoc Networks for junior year Technical Seminar. The paper proposed a new set of construction algorithms for creating a new family of graphs to improve network performance and their effects on FACE routing. Devised ways to improve these algorithms and implement them. Energy efficient solution was also formulated.

Industry Experience:

1. **Soft Corner, Pune -** Winter Internship (Databases, Web Technologies) - 2014

   Developed a generic form generator (similar to Google forms) where it would be possible to create customizable comprehensive forms as per user's requirement. This project was developed in Python, Django Framework, jQuery and MongoDB for the database.

2. **Ryussi Technologies, Pune -** Internship (Storage, Virtualization) - 2016

   Developed Docker volume plugin for:
   1. ZFS partitions on the host machine.
   2. SMB shares and NFS shares on the host machine.

   Allows the docker containers to mount the ZFS Pools/SMB shares/NFS shares as volumes on the host system. The user can create any number of volumes with names of own choice and also decide about where to mount these volumes on the ZFS Pool/SMB share/NFS share.

Cocurricular projects out of self-interest :

1. **HTTP Log Analyzer**

   Designed and implemented an analyzer for comprehensive analysis of HTTP log files. Used MongoDB and Java Servlet API along with web-technology resources like D3, JQuery, Bootstrap, AngularJS, etc. to process and present the analysis in visually aesthetic manner.

2. **TCP/IP Data Summarization and Analysis**

   Designed and developed an analyzer for comprehensive processing of packet capture files (.pcap/.cap) to generate a summary of TCP/IP data.

Academic and Cocurricular Achievements :

School Level:

- All India Rank 361 in National Cyber Olympiad (2007)
- Consistent top All India Ranks (282, 844, 334) in National Science Olympiad for years 2006, 2007, 2009
- State rank 18 in Maharashtra Talent Search Exam (2009), a State level Aptitude Scholarship exam with 110,000 appearing students.

College Level:

- Ranked in top 5% of the students in the department.
- Won 1st prize - Rolocule Best Innovation Award for the project Content-based Storage Mode in Btrfs at INC 2016.
- Won 1st prize - Open Showcase event (Project Exhibition Competition) at QUARK 2016, BITS Pilani, Goa Campus for the project Content-based Storage Mode in Btrfs.
- Won 2nd prize - 'Systems Applications : Storage and Databases category' at INC 2016, for the project Content-based Storage Mode in Btrfs.
- Won 3rd prize - Calsoft Best Project Award for the project Content-based Storage Mode in Btrfs.
- Won 3rd prize - Best Project award at MIT TechnoGenesis 2016, Pune for the project Content-based Storage Mode in Btrfs.
- Winner (1st prize) in M.A.D. Talks, a competition to present genuine SciFi ideas. This event was part of a National level technical mega-event Credenz, 2012, conducted by PICT-IEEE branch. The winning idea proposed by my colleagues and me was: V2R - Vibes to Reality, a hypothetical super-advanced communication system based on electromagnetic vibrations from human brain.
- 1st runner-up in Pradnya, a programming event in the national level symposium Impetus and Concepts 2014, PICT, Pune.

Extracurricular Achievements:

- Cultural Secretary of PICT from May 2015 to May 2016
- President of the PICT Art Circle – a group of over 100 theater enthusiasts for year 2015-16
- Part of team that won Best-organized Team prize in Purushottam Karandak twice - 2013, 2014
- Achievements under my leadership :
    - Our team won the first prize in the prestigious 51st Purushottam Karandak 2015
    - Also bagged the second prize in Mahakarandak 2016 at state level
    - Winner of Best-organized Team prize in Purushottam Karandak 2015
    - Won many other state-level theater competition prizes
- Photography team co-ordinator at the Creative Block of a startup magazine ‘Pictorially Speaking’
- Won the first prize in a voting based Photography Exhibition-cum-Competition - ‘Pics-O-Reel’

Technical Skills:

Programming Languages	C, C++, Java, Python, Go
DBMS	MySQL, PostgreSQL, MongoDB, Cassandra
Web Technologies	HTML, CSS, JavaScript, PHP, Django, Basics of jQuery, proficient in Web based application development
Systems	Proficient in Linux kernel / userspace development, file system architecture.

Hobbies:

- Singing
- Digital Photography
- Music Composition
- Digital Sound Mixing
- Theater
- Acoustic Guitar
- Sports

Strengths:

- Strong interpersonal skills
- Strong leadership skills
- Facing challenges
- Time management
- Hard working