HEMANT KUMAR SINGH

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EDUCATION

Master of Computer Science(Big Data Systems)   Graduating May 2021
Arizona State University, Tempe, Arizona   GPA: 4.0/4.0
Relevant Courses: Distributed Database Systems, Data Mining, Multimedia and Web Databases

Bachelor of Technology - Computer Science & Engineering   Graduated May 2013
SASTRA University, Thanjavur, India   GPA: 8.83/10.00
Relevant Courses: Data Structures, Algorithms, Distributed Systems, Database Management Systems

TECHNICAL SKILLS

Programming Languages & Paradigms	: Java, Python, OOPs, TDD
Data Engineering	: SQL, Lucene, Elasticsearch, Redis
Web Development	: HTML, JavaScript(beginner), Java Servlet
Software Development Tools	: IntelliJ, PyCharm, XCode, Android Studio
Others Tools & Frameworks	: Git, Protobuf, JavaCC, Spark, pandas, numpy

PROFESSIONAL EXPERIENCE

Member Technical Staff (Software Developer)   June 2013 – July 2019
Zoho Corporation   Chennai, India

- **Multi-module search implementation for ServiceDesk Plus** [Java, Elasticsearch, JavaCC, Tomcat]
  - Revamped the existing search implementation to support multi-module search, improve efficiency, and support a set of new search features.
  - Implemented normalized(table-wise) indexing and searching algorithm which reduced the database join query load by 22%.
  - Proposed and developed a natural language search feature to make it easier for the user to search.
  - Implemented various entity extraction techniques which improved the recall of the search results by 15%.
  - Developed configuration based application data indexing framework. It helped reduce the number of search-related software patch request by 85%

- **Federated search RESTFul API** [Java, Servlet, Protocol Buffer, HttpComponents]
  - Revamped existing federated search API and developed RESTful implementation for the same.
  - Introduced modular design in API and data layer to reduce time to integrate a new Zoho service in Zia Search from 30 days to 15 days.

- **Android & iOS SDK for the search interface** [Java, Swift, OAuth 2.0, SQLite, JUnit, XCTest]
  - Spearheaded the design and development of the Android & iOS enterprise search UI framework and mobile apps (Zia Search).
  - Collaborated with the product management team to develop a feature usage insight engine. It helped identify key features and increase app adoption by 9% month-over-month.

- **Search and indexing performance enhancement** [Java, Elasticsearch, Redis, MySQL, Protocol Buffer]
  - Improved search server performance by incorporating techniques like object caching, connection pooling, index request queuing, index warming, and binary(Protobuf) API response.
  - With these improvements, the server could handle 1.4x indexing requests and also search response time dropped by more than 11%.

ACADEMIC PROJECTS

Multimedia information retrieval system   Fall 2019
- Implemented image feature extraction and search using these feature models - Color Moments, Scale-invariant Feature Transform, Local Binary Patterns, and Histogram of Oriented Gradients.
- Improved image search performance by 30% by implementing *Dimensionality Reduction* techniques.
- Implemented relevance feedback using *Personalized Page Rank* in the image retrieval system.

AWARDS AND ACHIEVEMENTS

- Awarded with SASTRA University Dean's merit scholarship twice for being among the top 5% throughout the university in the academic year 2011-12 and 2012-13.
- Secured 1st rank in state level(Tamil Nadu, India) BlackBerry mobile app development contest – July 2012.
- Won bounty for discovering three security vulnerabilities in Zoho enterprise applications – 2018.