

## SUMMARY

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I am a software engineer at IBM where I build cloud native applications and help product teams to adopt best practices for developing production grade applications.

## EXPERIENCE

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### IBM

*Software Engineer*

Rochester, MN, USA

*Oct 2015 - Present*

#### **CloudPak Engineering:**

- \* Responsible for making IBM CloudPaks work consistently in RedHat OpenShift (RHOC) in hybrid cloud.
- \* Developed Kubernetes controller for Redis database, which was used as shared dependency across IBM CloudPaks.
- \* Developed general-purpose service broker operator for kubernetes (using OSB API).
- \* Developed solution and tooling for disconnected installs of IBM CloudPak on Openshift clusters.
- \* Developed internal tools (CLI) to improve the developer experience for packaging and delivering products.
- \* Implemented code signing and image signing for IBM CloudPak content pipeline, to ensure the integrity and avoid supply chain attacks.
- \* Helped develop certification service containing security best practices and patterns that IBM products must adhere to when developing production grade applications on Kubernetes.
- \* Helped onboard ISV and opensource helm charts into IBM catalog by addressing security gaps and hardening things to help them meet IBM standards for Kubernetes software.
- \* Responsible for maintaining inner source components.
- \* Participated and contributed in external open source communities like operator-sdk, operator-lifecycle-manager.

#### **Watson Natural Language Understanding:**

- \* An API as a service platform for natural language understanding tasks.
- \* Responsible for engineering, implementation, monitoring, and maintenance of the service.
- \* Integrated sentiment service with existing stack (implemented in Typescript).
- \* Developed helm charts to deploy the product in IBM Private cloud.
- \* Created scripts to automate migration of standalone databases to IBM Cloud Database instances.

#### **Analytics Engine:**

- \* A IaaS compute platform running Apache Hadoop and Spark.
- \* Worked on CLI component to interact with the cluster, launch spark jobs and retrieve logs.
- \* Implemented the webHDFS REST api as file system commands in the CLI.

#### **BigInsights on Cloud:**

- \* A big data platform running Apache Hadoop on VM's and baremetal machines.
- \* Developed Chef recipes to scale clusters by adding nodes, backup and restore.
- \* Parallelized delivery of security fixes to clusters.
- \* Worked on making the service GDPR complaint by adding Vault support and encrypting disks.
- \* Encryption was challenging task due to large size of disks ( 4 TB X 8 disk X 5-8 nodes). It's typically done by backing up data to temp disk storage and then encrypting it, but instead I proposed to use Hadoops self-healing and rack-awareness to handle data loss during encryption which cut down time from weeks to days.

#### **Spark as a Service:**

- \* A multi-tenant platform for running notebooks and batch jobs with Apache Spark, running on top IBM Spectrum and Apache Mesos.
- \* Responsible for engineering, implementation, monitoring, and maintenance of the service.
- \* Created a containerized integration test framework using Cucumber for the CI/CD pipeline.
- \* Improved the platform security by fixing vulnerabilities identified from external penetration testing.

#### **Analytics NextGen Workbench:**

- \* A platform for data scientists to design and develop predictive models and execute with SPSS backend.
- \* I was responsible for developing a scheduler microservice using Akka/Scala for the platform.

## University of South Florida

Research and Teaching Assistant

Tampa, FL, US

Aug 2014 - May 2015

### Research Assistant:

- \* Analyzed customer software subscriptions data provided by Wharton customer analytics initiative (wcai) research group.
- \* Involved in cleaning and preparation of data set, feature extraction, data visualization and identifying research questions.

### Teaching Assistant:

- \* Distributed Information Systems (ISM 6225) and Information Security and Risk Management (ISM 6328)

### Software Developer:

- \* Developed responsive web pages for college of global sustainability using Bootstrap, HTML5, CSS3 and JavaScript.

## Cognizant

Software Engineer

Chennai, TN, IN

Aug 2008 - Nov 2013

### Performance Engineering:

- \* Performed JVM profiling and heap dump analysis, to identify potential memory leaks and slow running code.
- \* Tuned JVMs and recommended GC policies appropriate for the application, which improved the scalability and reduced memory footprint.
- \* Developed RESTful web services, providing in-house performance engineering tools as SAAS services for internal development teams.

## EDUCATION

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### University of South Florida

Master of Science in Management Information Systems; GPA: 3.94/4.0

Tampa, FL, US

Jan. 2014 - May. 2015

### Madras Institute of Technology

Bachelor of Engineering in Computer Science; GPA: 6.8/10.0

Chennai, TN, IN

Aug. 2004 - July. 2008

## PROGRAMMING SKILLS

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**Languages:** Go, Python, TypeScript, Scala, Java, C++

**Frameworks:** Node, Akka

**Cloud Platforms:** Kubernetes, RedHat OpenShift, IBM Cloud

**Infrastructure:** Chef, Ansible

**Databases:** RDBMS (PostgreSQL, MySQL), NoSQL (Redis, MongoDB)

**ML:** R, Tensorflow

**Others:** Containers, Git

## ACADEMIC PROJECTS

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**ICC Cricket Worldcup 2015 predictions:** Collected and prepared match results data from espnricinfo.com. Built logistic regression models to estimate the probability of winning and evaluated against previous world cup.

**Recommender Systems:** Mentored by Dr.Balaji Padmanabhan, PhD. Investigated the problem of existing recommender algorithms used in businesses with hierarchical domains. Studied recommendation algorithms such as Probabilistic Inferences, SVD, CF and content filtering.

**Predictive Models for P2P lending:** Cleaned and analyzed a large XML (3.5 GB) data provided by peer-to-peer lending platform (www.prosper.com). Built predictive models for loans approval/rejections, loans default and risk calculation, and borrowers rating classification.

**Digital Image Processing toolkit:** Implemented image processing algorithms like Scaling, Edge detection, Fourier transforms and Hough Transforms in C++ (without built-in libraries like OpenCV)

**Character Recognition toolkit:** Implemented a classifier (minimum distance, Bayes moments and Nearest neighbor) for MNIST digit dataset using the central moments and covariance for each class as features.