

# CIJO GEORGE

**Email:** cijogeorge.in@gmail.com, **Phone:** +91 99 4567 0410

**LinkedIn.com**/in/cijogeorge, **GitHub.com**/cijogeorge

## PROFILE SUMMARY

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Data Scientist/ Machine Learning Engineer with interest and experience in statistical analysis and machine learning techniques, frameworks and platforms. Passionate about designing and developing end-to-end data-driven solutions to challenging problems using state-of-the-art/ emerging technologies.

## TECHNICAL SKILLS

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- **Statistical analysis and machine learning:** Time-series analysis, forecasting and anomaly detection, classification, clustering, feature engineering, dimensionality reduction, model validation and evaluation techniques, intuitive understanding of mathematics behind learning models.
- **Programming languages:** Python (scikit-learn, pandas, flask et al.), R (caret, dplyr, forecast, shiny et al.), BASH scripting (sed, awk et al.), SQL, C, C++, MPI, CUDA, Perl, PHP, HTML
- **Frameworks, platforms and tools:** Hadoop (Hive, MapReduce), Jupyter, Docker, Nginx, Gunicorn, Git, Amazon Web Services (AWS), Cask Data Application Platform (CDAP), LaTeX.
- **Other skills:** RESTful API design, agile development, working knowledge of operating systems, storage systems and networks.

## PROFESSIONAL EXPERIENCE

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### NetApp

August 2012 - Present

*Member Technical Staff/ Data Scientist, Advanced Technology Group*

*Bangalore*

- Lead advanced development projects with responsibility of studying the problem, proposing a solution, developing a working prototype/ proof-of-concept and taking prototypes into production.
- Successfully completed multiple big data analytics projects involving statistical analysis and machine learning techniques including *time-series analysis/ anomaly detection/ forecasting, classification, clustering, feature engineering* and *dimensionality reduction* on machine generated data.
- Designed and developed software to deploy statistical and machine learning models in production, with scalable *RESTful API interfaces* and *scale-out processing* of data analysis jobs for specific use-cases.
- Designed and prototyped a *data virtualization* solution providing a *data-pipeline* based approach for community-driven development of a semantic data catalog, with the goal of absorbing common machine learning and advanced analytics based data transformations into the data platform layer.
- Co-authored technical reports on emerging technologies in big data analytics/ machine learning.
- Co-authored an external publication on identifying/ troubleshooting performance problems in storage systems based on anomaly detection on time-series metrics collected from live systems.
- Involved in pitching new project ideas, interacting with stakeholders (technical and non-technical), mentoring juniors/ interns and collaborating with researchers from top Indian universities.

### Nokia Siemens Networks

June 2009 - July 2010

*Software Engineer, R&D*

*Bangalore*

- Part of development team for HLR (Home Location Register), a key component for call handling and value added services in the telecommunications *core network*.
- Involved in feature development for the next generation HLR release versions as well as maintenance of older versions.

## EDUCATION AND RESEARCH EXPERIENCE

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**Indian Institute of Science, Bangalore**

June 2013

*Supercomputer Education and Research Centre*

**Degree: Master of Science in Engineering (by research)**

*Thesis Title:* Fault Tolerance Strategies for Large Scale Systems

- Developed and prototyped a fault avoidance technique for MPI applications based on partial replication of processes and dynamic changing of replica set, using failure probability models for predicting impending failures.
- Developed a fault avoidance technique for malleable applications that dynamically changes the fault tolerance mechanism of the application throughout its execution, using failure probability models for predicting impending failures.
- Developed a generic fault tolerance simulator for parallel computing systems.
- *Course project:* Developed an adaptive technique to maximize resource utilization of physical systems in a Cloud environment based on resource utilization metrics.
- *Course project:* Worked on implementation of thread scheduling, system call interface, virtual memory and file system in Pintos OS framework.
- *Teaching assistantship:* Worked as a TA for two graduate level courses - High Performance Computing, Parallel Programming.

**Cochin University of Science and Technology**

April 2009

*Government Model Engineering College*

**Degree: Bachelor of Technology, Computer Science and Engineering**

- *Course projects:* USB mass storage device sharing over TCP/IP network; A collaborative text editor.
- *Pet projects:* An online stock-exchange simulator with real-time data feeds from National Stock Exchange; BASH-as-a-service: A web-browser based remote interface to BASH.

## EXTERNAL PUBLICATION

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- **Cijo George**, Sathish Vadhiyar, “Fault Tolerance on Large Scale Systems using Adaptive Process Replication”, *IEEE Transactions on Computers*, September 2014.
- Vipul Mathur, **Cijo George**, Jayanta Basak, “Anode: Empirical Detection of Performance Problems in Storage Systems using Time-Series Analysis of Periodic Measurements”, *MSST '14: Proceedings of the 30th International Conference on Massive Storage Systems and Technology (IEEE)*, Santa Clara, California, June 2014.
- **Cijo George**, Sathish Vadhiyar, “AdFT: An Adaptive Framework for Fault Tolerance on Large Scale Systems using Application Malleability”, *ICCS '12: Proceedings of the International Conference on Computational Science (Elsevier)*, Omaha, Nebraska, June 2012.

## PATENTS FILED

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- Vipul Mathur, **Cijo George**, Swaminathan Ramany, “System and Method for Analyzing a Storage System for Performance Problems using Parametric Data”, United States 14/194,467, Filed: February 28, 2014.

## CONTACT DETAILS AND SOCIAL PROFILES

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