

PROFESSIONAL SUMMARY

7 years of techno-functional experience in financial markets and economics working in research groups. Expertise in planning and design of systems and Application Programming Interfaces (API).

Keywords: C, R, LINUX, HIGH PERFORMANCE COMPUTING, CLOUD COMPUTING, FINANCIAL DATA MANAGEMENT, MARKET DATA PROCESSING, RESEARCH

COMPUTING SKILLS

<i>Languages</i>	C, R, SQL, UNIX Shell, HTML/CSS
<i>Platforms/Frameworks</i>	Amazon Web Services, Google Compute Engine, Jenkins, Mesos
<i>Linux distributions</i>	Debian, Ubuntu, RHEL, SLES

BUSINESS SKILLS

- Time management and organisation.
- Goal setting and team management.
- Client management and relationship building.
- Organisation design.
- Procurement using tendering process.

BUSINESS EXPERIENCE

National Institute of Public Finance and Policy

Research Programmer, Macro/Finance Group

2015 – 2016

Business objective

Implementing an API for data access and distributed computing.

Solution

- Working on building a dynamic **resource manager** for research computation on in-house and cloud machines using Apache Mesos platform.
- Working on implementing **cloud computation** infrastructure using Amazon and Google cloud services.
- Implemented dynamic API-based data generation and storage of financial metrics in an **R package**.
- Implemented an **API** to access about 100TB of financial transactions data.

Indira Gandhi Institute of Development Research

Research Programmer, Finance Research Group

2013 – 2015

Business objective

Lead a team to set up high performance computing infrastructure for financial data storage and analysis. To recreate market-by-price history per jiffy-second by market replay.

Solution

- **Client management** for the group, including requirement gathering, data specification, and IT infrastructure.

- Working on a **research paper** assessing the level and impact of high frequency trading in India.
- **Leading a team** of 6 people for various research related IT infrastructure projects.
- Designed and implemented an **order matching engine** to reconstruct the LIMIT ORDER BOOK using modular architecture in C for market replay using order-level data from the National Stock Exchange, India.
- Led a team of 3 people to implement textbfautomatic configuration and real-time **monitoring systems** for the newly built data center using *Icinga* and *Salt stack*.
- Did capacity planning, procurement and architecture of the **High Performance Computing** data center.

*Invited to be part of research team of Task force on Financial Data Management Center
Ministry of Finance, Government of India* 2014 – (on-going)

- Conceptualising the overall organisation and its goals.
- Working on the technology and data principles of the organisation.
- Writing the terms of reference for contracting out FDMC implementation.

National Institute of Public Finance and Policy

Research Programmer, Macro/Finance Group

2012

Business objective

Creation of time-series database of economic indicators. Creation of IT infrastructure for research project management.

Solution

- Designed an automated self-updating framework for retrieval and storage of macroeconomic **time-series data** using R, shell, and UNIX userspace utilities.
- **Lead a team** of 7 people for implementation of the time-series database.
- Implemented a framework for management and analysis of transaction-level data of foreign investors in the Indian stock exchanges released by the *Securities and Exchange Board of India*.
- Set up a *Debian* Linux server for hosting the group's website and other webapps. Hardened system security using *iptables* and kernel and application level patches.
- Deployed *Redmine*, an open source project management tool, using *Apache* as the web server, *MySQL* as the RDBMS, and *Subversion* as the version control system.

DevonIT

Software Developer

2010 – 2011

Business objective

Development of a commercial platform-agnostic client for remote desktop access on thin clients using Microsoft *Remote Desktop Protocol* (RDP).

Solution

- The application was developed using the *Qt* framework in *C++* using **finite state machine automata**.
- Implementation of various **remote desktop modules** such as disk redirection, port redirection, and RemoteFX.
- The product was successfully released into the market.

E2E Networks Ltd.
Junior Systems Architect

2009 – 2010

Business objective

To create and manage a cloud of servers used for web and application hosting.

Solution

- Used *XEN* platform to help **build a cloud** of virtual machines.
- Configured Linux servers for **high-availability and distributed access** using *Heartbeat* software and MySQL replication.

TALKS/CONSULTING

Emerging Markets Conference

Speaker

2014

- Introduced the panel for a discussion on *High Frequency Trading*.

Fifth Elephant Conference

Speaker

2014

- Presented a full talk on the Causal Impact of Algorithmic Trading on Market Quality.

R/Finance Conference

Speaker

2014

- Presented a lightening talk on the R *eventstudies* package: its use in financial studies like analysing the impact of stock splits.

Reserve Bank of India

Sub-group on monetary policy, macroeconomic analysis, and financial stability.

Committee on Data and Information Management

2014

- Helped the sub-group understand the data gaps at RBI with respect to monetary policy, macroeconomic analysis, and financial stability.
- Suggested changes required at the central database to adhere to international data standards such as IMF SDDS+, G20 Data Gaps Initiative.

CFO Institute

Speaker

2014

- Presented a series of talks in Bangalore, Mumbai, and Delhi on “*Bitcoin: Is virtual the new reality?*”

Indira Gandhi Institute of Development Research

Technology Trainer, Finance Research Group

2012

- Requirement: The group members needed a skill upgrade to match the ever-increasing scale of their analytical & programming requirements to increase research output.
- Solution: Designed curriculum and imparted two week training in statistical programming using R, version control using SVN, project management using Redmine, and Unix utilities.

Financial Sector Legislative Reforms Commission

IT operations

2011 – 2013

- The commission required IT support for management of the project. I worked on implementation of various IT-solutions to help increase collaboration among various teams working on the project, which includes internal processes for discussion and information sharing.

OPEN SOURCE CONTRIBUTION

- One of the authors of `eventstudies` R package.
- Maintainer of `ifrogs` R package.

WRITINGS

- List of blogs and articles available at: <http://atvariance.in/chiraganand>.

EDUCATION

Jaypee University of Information Technology
B.Tech. Computer Science

GPA: 6.3/10
2005 – 2009

REFERENCES

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National Institute of Public Finance and Policy

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