

Cover Letter

A wise man once said: "Data is a precious thing and will last longer than the systems themselves". That man was Tim Berners-Lee.

Indeed, we are living in the world where Data is all that matters: how to acquire, store, transfer, transform and generate informative knowledge out of it. For this reason, and for many others, my career objective is to act as an expert in data-driven research and development. I am really excited to apply for this position in Data61 as my goals align perfectly with the vision of the company which is to create a positive data-driven future and I would like to be a part of it. After reviewing the job description and reading the company's science vision, I believe Data61 is a perfect fit for my aspirations and I have the necessary skills and abilities to fill the role of Postdoctoral Fellowship in Smart Sensor and Health Data.

My name is Rohit Kumar and I am a final year Ph.D. candidate doing a joint PhD in temporal graph mining from ULB, Belgium and UPC, Spain. I will be finishing my PhD on June 2018. My current fascination with data analysis comes from my diverse background. In my formative years, I was very curious on understanding how everything works which lead me to pursue graduation in Physics from the prestigious Hindu College in Delhi University. While I was doing my graduation, my curiosity to learn new things took me to do a 3-year summer internship in one of the most prestigious research institutes of India (Jawaharlal Nehru Centre for Advanced Scientific Research, JNCASR IISC Bangalore). I used to visit the research center every summer vacation for 1.5 months to do an internship as a research assistant to study Nanomaterials under the supervision of Prof CNR Rao as part for the POCE (Project-oriented chemical education) internship.

After finishing my graduation, I joined TCS (Tata consultancy services) and was working as a research and training assistance while doing my masters from CMI (Chennai Mathematical Institute). It was a joint program conducted by TCS and CMI wherein I use to go to university for my Master in Computer science course 2 days a week and work as research and training assistant in TCS for rest of the time.

After finishing my master's I moved to TCS- Mumbai where I worked for 3 more years on taking my master's thesis project from internal software used by TCS to a cloud-based service platform for Indian education and banking market. I worked as a technical lead designing and developing the online assessment platform for the Indian market. Currently, the platform is

being used for all the high level major Online Exams in India. As part of this project I filled for 3 patents 1 out of which is already granted.

While working, it was impossible to ignore the fact that the world is advancing at a tremendously accelerated pace and paradigm shifts will arrive at increasingly shorter intervals, specifically in the field of Data Analysis, where changes are very apparent. Hence, the thirst to learn and try something new motivated me to move to Europe to peruse a Ph.D., where I was granted FNRS scholarship.

For the last 3.5 years, I have been doing research at top-notch universities across Europe, enriching my skills in Big Data, Stream Mining and Distributed processing. My research focuses on designing efficient one-pass algorithms to analysis large interaction/temporal networks such as social media network or communication network. I have also worked on Influence maximization and Information propagation problems using Interaction network. Currently, I am working on distributed graph processing, where I focus on using cost model-based approach for adaptive graph partitioning on Apache GraphX. My current experience working with the Big data technologies and my past experience with working real-world large-scale systems uniquely qualify me for this position.

To conclude, I believe I have got what it takes to make a valuable contribution to my team as I always do, and reflect my solid grounding for the benefit of my ultimate goal, that is doing what it takes to improve myself and my surrounding. I believe Data61 is a perfect fit for my aspirations and as you could see from my background (CV attached in next page) my skill sets is a perfect match for the role.

Thanks

Rohit



RohitKumar

Big Data Scientist

Address

Avenue General Medicine
Derache 28
Brussels 1050
Belgium

Phone

+32 465 931 350

Mail

rohit1308k@gmail.com

Web

rohit13k.github.io

Programming

Java	★★★★★
Scala	★★★★☆
C++	★★★★☆
Python	★★★★☆

Databases

MySQL	★★★★★
MS SQL	★★★★☆
Oracle	★★★☆☆
Coherence	★★★★☆

Big Data Systems

Spark	★★★★★
Hadoop	★★★★☆
Flink	★★★☆☆
Kafka	★★★★☆
NoSQL	★★★★☆

Experience

- | | | |
|-------------------|--|--|
| Aug. 14 - Now | PhD Researcher
Expected, a Ph.D. in "Graph Data stream mining and distributed processing" in June 2018 from ULB (Brussels) and UPC (Barcelona). The research focuses on designing efficient one pass algorithms to analysis large interaction networks such as social media network.
Worked on social network analysis and viral marketing.
Currently, working on distributed graph processing on Apache Spark GraphX. Worked on other Distributed processing systems like Hadoop, MongoDB, Kafka, Hive and Cassandra.
Teaching/Lab assistant for data-warehouse course for one semester for a class of 20 master students. | Université Libre de Bruxelles (ULB), Belgium |
| Sep. 17 - Now | Online Trainer (part time)
Designed and delivered online course on Big Data Engineering course (Hadoop, Spark, Hive, Pig, Cassandra, NoSQL) for Digital Vidya for a batch of 10 students.
Delivered online course on Data science with Python (NumPy, Pandas, scikit-learn) and Scala (Spark Mllib) for Digital Vidya online courses. | Digital Vidya, India |
| Jun. 14 - Jul. 14 | Software Designer
Developed data pipelines with Java for the banking system using Oracle Coherence. | Royal bank of Scotland, Delhi, India |
| Apr. 11 - May. 14 | Assistant Consultant
Technical team lead and Scrum Master for the entire online assessment platform, an online cloud based system for conducting online examinations and certifications.
Developed and deployed the complete Eco-system of the online assessment platform in multi-tenant architecture for software as a service model.
Technologies used: J2EE, Java, MySQL, SVN, Struts 2. | Tata Consultancy Services, Mumbai, India |
| Mar. 11 - Sep. 11 | Researcher
Worked on data privacy and data security. Worked on data masking techniques for privacy preserving data mining.
Technologies used: C++, CVS | Tata Research Development and Design Center, Pune, India |
| Nov. 07 - Mar. 11 | Assistant System Engineer
Lead architect to develop and deploy the online assessment platform for TCS hiring throughout India.
Performance and Security Lead for the online assessment platform.
Taught Algorithms and Java to new employees as a part of learning and development program.
Technologies used: Java, CVS, Haskel, Java Security library, MS SQL. | Tata Consultancy Services, Chennai, India |
| Jun. 05 - Jun. 07 | Summer Research Intern
Did two summer(2 months) and one winter(1 month) research intern in Nanoscience. Worked with P.hD students on analyzing nano material properties under electron microscopes. | JNCsAR, IISC, Bangalore, India |

Languages

English ★★★★★
Hindi ★★★★★
Spanish ★☆☆☆☆

Personal Skills



Education

- Aug. 14 - Now **Ph.D Candidate** [Université Libre de Bruxelles & Universitat Politècnica de Catalunya](#)
Doing a joint PhD from ULB and UPC under joint supervision from Toon Calders and Alberto Abello, Funded by FNRS scholarship.
- Aug. 08 - Apr. 11 **M.Sc in Computer Science** [Chennai Mathematical Institute, India](#)
The Master course was done part time while working in TCS. Main subjects: Discrete Mathematics, Database Systems, Operating systems, Data mining, Cryptography, Statistics, Design and Analysis of Algorithm, Theory of Computation, Programming language Concepts. Grade: **8.44%**
Thesis: Security aspects of online Assessment platform-Touchstone.
- Jul. 04 - Jul. 07 **B.Sc(Hons) in Physics** [Hindu College, Delhi University](#)
Did summer research internship at IISc Bangalore every summer break. Co-Organized Physics Department fest on 2006. Percentage: **76.1%**

Awards and Achievements

- Apr. 13 **Best Technical Lead Award in ACTION2013 in SMB iON** [TCS](#)
Awarded best technical lead in the entire department of 500 developers and 25 teams.
- Sep. 11 **Innovation of the year award southern region** [Tata Innovista](#)
Tata group yearly award for innovations across the Tata groups companies.

Papers and Patents

- 2017 **Activity-Driven Influence Maximization in Social Networks** [ECML/PKDD](#)
Rohit Kumar, Muhammad Aamir Saleem, Toon Calders, Xike Xie and Torben Bach Pedersen
- 2017 **Cost Model for Pregel on GraphX** [ADBIS](#)
Rohit Kumar, Alberto Abello, and Toon Calders
- 2017 **Information Propagation in Interaction Networks.** [EDBT](#)
Rohit Kumar and Toon Calders
- 2017 **Location Influence in Location-based Social Networks.** [WSDM](#)
Muhammad Aamir Saleem, **Rohit Kumar**, Toon Calders, Xike Xie and Torben Bach Pedersen
- 2017 **IMaxer: A Unified System for evaluating Influence Maximization Mechanisms in Location-based Social Networks** [CIKM](#)
Muhammad Aamir Saleem, **Rohit Kumar**, Toon Calders, Xike Xie and Torben Bach Pedersen
- 2017 **Cost Model Based Approach for Graph Partitioning in Spark GraphX** [DBDD](#)
Rohit Kumar, Alberto Abello, and Toon Calders

- 2017 **Finding simple temporal cycles in an interaction network.** [ECML/PKDD](#)
Rohit Kumar and Toon Calders
- 2015 **Maintaining sliding-window neighborhood profiles in interaction networks.** [ECML/PKDD](#)
Rohit Kumar, Toon Calders, Aristides Gionis, and Nikolaj Tatti.
- 2009 **System and method for automated competency assessment** [US8915744](#)
Raman Srinivasan, Priyadharshini Sridhar, Swarna Srinivasan, **Rohit Kumar**,
Radhika Jayapaul, Radhika Ganesan, Amit Nath, Vikash Agarwal
- 2013 **Customized question paper generation** [US20130084554A1](#)
Viral Prakash SHAH, Nawaz Shaikh, **Rohit Kumar**
- 2014 **Secured Computer Based Assessment** [US20140186812A1](#)
Viral Prakash SHAH, Nawaz Shaikh, **Rohit Kumar**

Rohit Kumar
January 25, 2018