

# Lakshmi J Mohan

## Profile Summary

I have recently completed my PhD at the School of Computing and Information Systems, University of Melbourne. My doctoral thesis was on "Erasure codes for optimal performance in geographically distributed storage clusters". I have demonstrated teaching experience in Computing and Information Technology at undergraduate and postgraduate levels, spanning over 15 years in India, Middle-East and Australia. I am passionate about roles that will help me grow intellectually and motivate me further to learn and apply new concepts into pedagogy and research.

## Education

- 2014–2018 **Doctor of Philosophy**, *Computing and Information Systems*, University of Melbourne, Australia.  
**Abstract:** The thesis investigates the problem of improving recovery performance in geographically distributed erasure coded storage systems faced with occasional node failures. A set of placement methodologies that augment an XOR-based code including a code-aware heuristic is presented with implementation on Hadoop. A novel optimization framework for placing blocks of data that minimizes the average repair cost during node failures is proposed with simulation and implementation results that validate it. The optimization framework admits any general erasure coding methodology, benefitting storage providers.
- 2003–2005 **Master of Technology (Computer and Information Technology)**, *Manonmaniam Sundaranar University, TamilNadu, India, CGPA: 3.3/4.*
- 1999–2003 **Bachelor of Technology (Information Technology)**, *Noorul Islam University, TamilNadu, India, CGPA: 3.5/4.*

## Awards and Achievements

- 2014 Living stipend allowance for the duration of research candidature, *Data61/The Commonwealth Scientific and Industrial Research Organisation- CSIRO Australia*
- 2014 Melbourne International Fee Remission Scholarship for PhD course, *University of Melbourne*
- 2013 International Macquarie University Research Excellence Scholarship (iMQRES), *Macquarie University, Sydney*
- 2006 First Rank in the state-wide exam for recruiting academics to Engineering Colleges, *Department of Technical Education, Government of the state of Kerala*
- 2005 Outstanding teacher in student feedback poll, *Marian Engineering College, India*
- 2003 University Topper in undergraduate course, received gold medal from *the Governor of the state of TamilNadu*

- 1999 Fee Waiver Scholarship for the duration of undergraduate study, *Department of Higher Education, Government of the state of TamilNadu*
- 1997 National Merit Scholarship, *Government of India*
- 1997 Stood fifth at state level and first at district level, 10th grade state exam, TamilNadu

## Technical skills

MS Office	Advanced
C, Java	Advanced
MATLAB, R	Intermediate
Latex	Intermediate

## Relevant Work Experience

### Research

- May 2018–Sep 2018 **Postdoctoral Research Assistant**, *University of Melbourne, Australia, Parkville Campus, Melbourne.*
- 2018 Working with my supervisor, I provided research assistance to various projects contributing in ways that lead to the successful completion of research.
- 2014–2018 **Ph.D. researcher**, *University of Melbourne, Australia, Parkville Campus, Melbourne.*
- I tutored for the subjects COMP90007 (Internet Technologies) and COMP90015 (Distributed Systems) at School of Computing and Information Systems, University of Melbourne, during my research candidature.

### Teaching

- Sep 2018– **Associate Professor**, *Govt. Engineering College, Idukki, Kerala, India.*
- I taught the newly introduced course **Data Analytics** to final year students. I did the following duties during this duration:
- Prepared lecture materials and other resources pertaining to the course
  - Experimented with collaborative peer learning and study groups and found them to be effective pedagogy tools
  - Prepared university exam question paper for the course
  - Evaluated research projects of masters students, helping them in appreciating the findings of existing research and performing effective literature survey
- 2011–2014 **Assistant Professor**, *Govt. Engineering College, Idukki, Kerala, India.*
- In addition to being responsible for teaching at graduate and undergraduate levels, my major duties included:
- Served as the Head of the Department for two years before proceeding on study leave. Organised departmental meetings, conferences and seminars and represented various academic bodies
  - Coordinating the inception and functioning of procurement wing of the world bank funded project, Technical Education Quality Improvement Programme (TEQIP - Phase II) at the institution

2010–2011 **Assistant Professor**, *Govt. Engineering College, Barton Hill*, Thiruvananthapuram, Kerala, India.

Some of my duties included:

- Preparing and delivering lectures for undergraduate and postgraduate students, all related academic duties like conducting tutorials and laboratories
- Designing modules and course material for undergraduate and postgraduate subjects
- Contributing to University's curriculum revision

2009–2010 **Lecturer**, *Middle East College*, Rusayl, Sultanate of Oman.

I taught undergraduate level courses, and was mainly responsible for lectures and marking. I believe that the experience of teaching students from diverse nationalities helped broaden my thoughts and improve my skill sets to a great extent.

2006–2008 **Lecturer**, *Govt. Engineering College, Barton Hill*, Thiruvananthapuram, Kerala, India.

Apart from regular teaching related activities, the major duties were:

- Supervising students for final term project work
- Subject grading both in semester and for final exam at the University
- Advising students on academic and related matters

2003–2006 **Lecturer**, *Marian Engineering College*, Kazhakuttam, Thiruvananthapuram, Kerala, India.

My primary duties were to teach undergraduate students and taking care of laboratory works and related assessments.

I got the opportunity to get involved in setting up Campus wifi and the new computer laboratories with related software and networking.

#### Volunteer and Extra curricular activity

2017–2018 **School Council President**, *Carlton Primary School*, Melbourne.

As President of the Council at the School where my daughters study, I was involved in all activities that pertain to the growth of the school. Working with the Principal, teachers and other parent representatives, I gave inputs in revising the Annual Implementation Plan of the school for the year 2018. I was involved in the School review process that reviews the School Strategic Plan (SSP) for the past 4-year period (2014-2017) and gives considerations for inclusion in the SSP for the upcoming period.

I was also part of a very happening phase of the school during its 15 million AUD worth recent renovation and redevelopment funded by the Department of Education and the City of Melbourne.

2017 **Teacher**, *Brainobrain Australia*, Melbourne.

I taught the Abacus mental arithmetic and skill development course to primary schoolers from various schools across the city of Melbourne.

2015 **Volunteer Educator**, *Church of All Nations*, Carlton, Melbourne.

I volunteered to teaching primary and secondary school students living in the neighborhood of Carlton suburb at Home Work Club run by the Church, after school.

2014 **Volunteer**, *SEquences and Their Applications - SETA 2014*, University of Melbourne.

I volunteered in helping with the logistics, planning and hosting of the prestigious conference at the University at which my supervisor was the General Chair.

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## Publications

- i Lakshmi J. Mohan, Renji Luke Harold, Pablo Ignacio Serrano Caneleo, Udaya Parampalli, and Aaron Harwood. *Benchmarking the performance of hadoop triple replication and erasure coding on a nation-wide distributed cloud*. In 2015 International Symposium on Network Coding, NetCod 2015, Sydney, Australia, June 22-24, 2015, pages 61–65, 2015  
Won the second best paper prize at NICTA Victoria Summer Schools Final Seminar 2015 organized by *Data61/CSIRO*
- ii Pablo Ignacio Serrano Caneleo, Lakshmi J. Mohan, Udaya Parampalli, and Aaron Harwood. *On improving recovery performance in erasure code based geo-diverse storage clusters*. In 12th International Conference on the Design of Reliable Communication Networks, DRCN 2016, Paris, France, March 15-17, 2016, pages 123–129, 2016
- iii Lakshmi J. Mohan, Pablo Ignacio Serrano Caneleo, Udaya Parampalli, and Aaron Harwood. *Geo-aware erasure coding for high-performance erasure-coded storage clusters*. *Annals of Telecommunications*, 73(1):139–152, Feb 2018
- iv Lakshmi J. Mohan, Udaya Parampalli, Ketan Rajawat, Aaron Harwood: *Optimal placement for repair efficient storage codes in geo-diverse storage clusters*, accepted in the *Journal of Parallel and Distributed Computing*, under production.

### Certifications

- EC-Council Certified Ethical Hacker
- MCSHE Advanced Skills for Sessional Teachers

### Organizational Memberships

- IEEE Member (93365644), IEEE Victorian Chapter, IEEE Women In Engineering Group
- ISTE Life Member, Indian Society for Technical Education

### Research Interests

- Areas Distributed Systems, erasure coding for storage, big data processing, data science and cloud computing, IoT networks, privacy and security

### Professional Development and Training

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|-------------|---|-------------|---|
| Soft skills | <i>Ethics and Values for Managers</i> , LBS National Academy of Administration, Mussorie, India | Technical   | <i>Remote Sensing</i> , Mathworks, Melbourne  |
| Technical   | <i>Windows Azure Training</i> , Microsoft, Melbourne  | Soft skills | <i>Training on Management Capacity Enhancement for Administrators</i> , IIM, Kozhikode, India                       |
| Technical   | <i>DisruptorsInTech - Data Analytics Explained by Deloitte Australia</i> , AWS Melbourne        | Soft skills | <i>Life and Career Planning Seminar</i> , IEEE Women in Engineering Student Affinity Group, University of Melbourne |

## Professional Services

- Reviewer Advances in Communication Systems and Networks - Select Proceedings of ComNet 2019
- Reviewer The 3rd International Conference on Computer Science and Application Engineering 2019
- Reviewer IEEE/ACM Transactions on Networking
- Reviewer IEEE Access

## Invited Lectures / Chairing / Resource Person / Keynote Address

- Invited Speaker Delivered a talk on '*Motivation and beyond: from the perspective of studying overseas*' in connection with inauguration of Electronics Association at MEC, Thiruvananthapuram - August 2019
- Contributory Speaker Conference of Communications Sensing and Coding, University of Melbourne, November 2017
- Demonstrator, Summer Camp 2015 To selected students from Tsinghua University, Beijing PRC who attended the Engineering and IT summer camp 2015 at University of Melbourne
- Nominated RHD student Research Review Panel session, December 2014, School of CIS, University of Melbourne
- Member of Judging panel Colloquium - national level technical symposium, March 2006, MCET, Thiruvananthapuram
- Invited speaker Short term course on Internet and Web Administration, 2005, SCTCE, Thiruvananthapuram

## Organization of Academic Conferences / Workshops / Designing Courses

- Module developer Summer school on codes for distributed storage, IITK July 2017
- Organizer Various Short Term Training Programmes (STTP), Department of Technical Education, Government of Kerala

## Examinership and Question Paper Setting

- MG University Kerala PG question paper setter
- APJ Abdul Kalam Kerala Technological University PG question paper setter, passing board member

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## References

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