Aravind Mohan

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Objective

An assistant professor in the computer science department at Allegheny College, with a strong objective to, a) facilitate cutting edge research innovations by utilizing a solid background in publishing internationally acclaimed research articles, leading interdisciplinary collaborations and writing grant proposals, b) recruit and mentor talents across the globe by leveraging several years of research and industry experiences, and c) design and teach top-notch technology courses for training undergraduate and graduate students by employing innovations in teaching methodologies and techniques.

Research Interests

- **Main interests:** big data management, with the focus on 1) developing scalable and usable tools and models to address the five "V" challenges of big data leveraging the cloud; 2) building QoS driven cloud based big data workflow optimization techniques.

- **General interests:** data science, big data, cyber security, databases, web information retrieval, services computing, provenance and Internet of Things.

Education

- **Wayne State University**   Detroit, MI
  PhD, Computer Engineering   *Fall, 2011 - Winter, 2017*
  - Advisor: Dr. Shiyong Lu
  - Dissertation Title: Improving Usability and Scalability of Big Data Workflows in the Cloud.

- **Governors State University - University Park, IL**   University Park, IL
  MS, Computer Science   *Winter, 2006 - Winter, 2008*
  - Advisor: Dr. Steve Shih
  - Focus area: Databases and Software Engineering

- **Anna University**   Madras, India
  RMK Engineering College   *Fall, 2001 - Summer, 2005*
  BE, Computer Science and Engineering

Professional Experience

- **Wayne State University**
  Research Assistant, Teaching Assistant, Graduate Student Assistant, Lecturer   Fall 2011 - Winter 2017

– research, teaching, service, helping my advisor in initiating collaborations and to write several grant proposals, web programmer at the Wayne State Budget Office.

- **Union Bank Of California, Monterey Park, CA**
  Lead Software Engineer   *May 2010 - Aug 2011*
  – Leading the database development team in several middleware application development projects that does data transformation from different 3rd party applications and other bank's internal database systems.

- **Kaiser Permanente, Honolulu, HI**
  Software Engineer   *June 2008 - May 2010*
  – Designed and developed a web based content management systems to automate the web content creation for several departments within Kaiser by using the user level authentication and the necessary business logic for storing/retrieving data from the database backend.

- **Marathon Oil Corporation, Findlay, Ohio**
  Software Engineer Intern   *June 2007 - June 2008*
  – Developed an automated report generator tool to display the daily forecasts of sales and print reports of day-to-day business operations (driver dispatch schedule reports, truck summary reports etc) by applying data transformation logic from several Oracle based databases.

TEACHING EXPERIENCE

- **Wayne State University**
  Graduate Teaching Assistant, Part time faculty   *Fall 2012 - Winter 2017*
  Courses taught:
  – *CSC2110 Computer Science I.*   *F2014*
  – *CSC2111 Computer Science I Lab.*   *F2014*
  – *CSC3110 Computer Architecture and Organization .*   *F2014*
  – *CSC3111 Computer Architecture and Organization Lab.*   *F2014,S2016*
  – *CSC2000 Introduction to C++ Programming Language.*   *F2014*
  – *CSC1501 Fundamental Structures in CS (Discrete Math) Lab.*   *S2014*
  – *CSC1100 Problem Solving and Programming.*   *S2014*
  – *CSC1100 Problem Solving and Programming Lab.*   *S2013,S2014*
  – *CSC1000 Introduction to CS.*   *F2011,W2011*
  Courses assisted:
  – *CSC6710 Database Management Systems I (Relational Databases). F2012,F2013,F2015*
  – *CSC7710 Database Management Systems II (NoSQL Databases).*   *W2012,W2013*
  – *CSC8710 Seminar on Big Data Workflows.*   *W2015,W2016*
  – *CSC8710 Seminar on Database Management Systems.*   *W2012,W2013,W2014*

- **Governors State University**
  Graduate Teaching Assistant   *Fall 2006 - Winter 2008*
  Courses assisted:
    - *CPSC8720 Internet Programming.*   *F2006,W2007*
    - *CPSC8820 Planning and Management of Software Projects.*   *F2008,W2008*

PUBLICATIONS

- **Conference Proceedings (10)**

  1. **Aravind Mohan**, Mahdi Ebrahimi, Shiyong Lu, and Alexander Kotov. A NoSQL Data Model For Scalable Big Data Workflow Execution, in *Proc. of the IEEE International Congress on Big Data (BigData Congress)*, San Fransisco, CA, 2016. *Acceptance rate: 24%.*

  2. **Aravind Mohan**, Mahdi Ebrahimi, Shiyong Lu, and Alexander Kotov. Scheduling Big Data Workflows in the Cloud under Budget Constraints, in *Proc. of the IEEE Conference on Big Data (BigData)*, Washington D.C., USA, 2016. *Acceptance rate: 29%.*

  3. **Aravind Mohan**, Mahdi Ebrahimi and Shiyong Lu. A Folksonomy-Based Social Recommendation System for Scientific Workflow Reuse, in *Proc. of the IEEE International Conference on Services Computing (SCC)*, pp. 704-711, NYC, USA, June 27-July 2, 2015. *Acceptance rate: 29%.*

  4. **Aravind Mohan**, Mahdi Ebrahimi and Shiyong Lu. Towards an Online Service for Learning Computational Thinking Using Scientific Workflows, in *Proc. of the IEEE International Conference on Services Computing (SCC)*, pp. 340-347, NYC, USA, June 27-July 2, 2015. *Acceptance rate: 29%.*

  5. **Aravind Mohan**, Mahdi Ebrahimi and Shiyong Lu. Addressing the Shimming Problem for Big Data Scientific Workflows, in *Proc. of the IEEE International Conference on Services Computing (SCC)*, pp. 347-354, Anchorage, AK, USA, June 27-July 2, 2014. *Acceptance rate: 29%.*

  6. Mehedi Hasan, Alexander Kotov, **Aravind Mohan**, Shiyong Lu, and Paul Stieg. Feedback or Research: Separating Pre-purchase from Post-purchase Consumer Reviews, in *Proc. of the 38th European Conference on Information Retrieval (ECIR 2016)*, pp. 682-688, Padua, Italy, March 20-March 23, 2016. *Acceptance rate: 24%.*

  7. Mahdi Ebrahimi, **Aravind Mohan**, Shiyong Lu, and Robert Reynolds. TPS: A Task Placement Strategy for Big Data Workflows, in *Proc. of the IEEE International Conference on Big Data (IEEE BigData 2015)*, pp. 523-530, Santa Clara, CA, USA, October 29-November 1, 2015. *Acceptance rate: 17%.*

  8. Mahdi Ebrahimi, **Aravind Mohan**, Andrey Kashlev and Shiyong Lu. BDAP: A Big Data Placement Strategy for Cloud-Based Scientific Workflows, in *Proc. of the IEEE International Conference on Big Data Computing Services and Applications (BigDataService2015)*, pp. 105-114, Redwood City, CA, USA, March 30-April 2, 2015. *Acceptance rate: 24%.*

  9. Zaihan Yang, Alexander Kotov, **Aravind Mohan** and Shiyong Lu. Parametric and Non-parametric User-aware Sentiment Topic Models, in *Proc. of the ACM Special Interest*

Group on Information Retrieval (SIGIR2015), pp. 413-422, Santiago, Chile August 9-August 13, 2015. *Acceptance rate: 20%.*

10. Dong Ruan, Shiyong Lu, **Aravind Mohan**, Xubo Fei, and Jia Zhang. A User-Defined Exception Handling Framework in the VIEW Scientific Workflow Management System, in *Proc. of the IEEE International Conference on Services Computing (SCC2012)*, pp. 274-281, Honolulu, HI, USA, June 24-June 29, 2012. *Acceptance rate: 29%.*

- **Journal Articles (1)**

  1. Mahdi Ebrahimi, **Aravind Mohan**, Andrey Kashlev, Shiyong Lu, and Robert Reynolds. Task and Data Allocation Strategies for Big Data Workflows, *International Journal on Big Data (IJBD)*, 2(2), pp. 28-42, 2015.

- **Technical Reports (3)**

  1. **Aravind Mohan**, Mahdi Ebrahimi, Shiyong Lu, and Alexander Kotov. Scheduling Big Data Workflows in the Cloud under a User Provided Budget Constraints. Technical Report TR-BIGDATA-08-2016-MELA, Department of Computer Science, Wayne State University, August, 2016.

  2. Mahdi Ebrahimi, **Aravind Mohan**, Shiyong Lu, and Robert Reynolds. Scheduling Big Data Workflows in the Cloud under a User Provided Deadline Constraints. Technical Report TR-BIGDATA-08-2016-EMLR, Department of Computer Science, Wayne State University, August, 2016.

  3. **Aravind Mohan**, Mahdi Ebrahimi, Shiyong Lu, and Alexander Kotov. A NoSQL Data Model For Scalable Big Data Workflow Execution. Technical Report TR-BIGDATA-05-2016-MELA, Department of Computer Science, Wayne State University, May, 2016.

PRESENTATIONS AND INVITED TALKS

- *A Big Data Management Framework for Running Workflows in the Cloud.* Dissertation Proposal, Wayne State University, 2016.

- *A NoSQL Data Model For Scalable Big Data Workflow Execution.* IEEE International Congress on Big Data (BigData Congress), New York, NY, 2016.

- *A NoSQL Data Model For Scalable Big Data Workflow Execution.* Graduate Seminar (invited talk), Wayne State University, Detroit, MI, 2016.

- *A NoSQL Data Model for Running Big Data Workflows in the Cloud.* 7th MidWest Graduate Research Symposium (invited talk), University of Toledo, Toledo, OH, 2016.

- *A NoSQL Data Model for Running Big Data Workflows in the Cloud.* 7th MidWest Graduate Research Symposium (poster presentation), University of Toledo, Toledo, OH, 2016.

- *A Big Data Platform for running workflows in the Cloud.* 3rd Big Data and Business Analytics Symposium (poster presentation), Wayne State University, Detroit, MI, 2016.

- *A Folksonomy-Based Social Recommendation System for Scientific Workflow Reuse.* IEEE International Congress on Big Data (BigData Congress), New York, NY, 2015.

- *A Folksonomy-Based Social Recommendation System for Scientific Workflow Reuse.* Graduate Seminar (invited talk), Wayne State University, Detroit, MI, 2015.

- *Towards an Online Service for Learning Computational Thinking Using Scientific Workflows.* IEEE International Conference on Services Computing (SCC), New York, NY, 2015.

- *Towards an Online Service for Learning Computational Thinking Using Scientific Workflows.* Graduate Seminar (invited talk), Wayne State University, Detroit, MI, 2015.
- *Addressing the Shimming Problem for Big Data Scientific Workflow.* IEEE International Conference on Services Computing (SCC), Anchorage, AK, 2014.
- *Addressing the Shimming Problem for Big Data Scientific Workflow.* Graduate Seminar (invited talk), Wayne State University, Detroit, MI, 2014.
- *Elearning Platform to Learn Computational Thinking Skills using Scientific Workflow Technology.* Graduate Symposium (poster presentation), Wayne State University, Detroit, MI, 2013.

Research Projects

- **DATAVIEW**: An online big data workflow management system (BWFMSs), that enables domain scientists to create, edit, search, share, debug and run big data workflows online. The tool focuses on large-scale data processing and analytics with a "scale-out" architecture and a "moving-computation-to-data" processing paradigm using the Amzon EC2 and Future Systems Cloud Environments.
  www.dataview.org. Supported by NSF ACI-1443069.   *2012-pres.*
- **Web Crawler**: Crawl web data from automobile review sites such as KBB, MSN Autos, Edmunds. Supported by Ford Motor Fellowship. Dataset Sample: https://github.com/teanalab/USTM
- **CT-Learn**: A tool used for learning computational thinking concepts and skills online. The tool is used in CSC6710 Database Management Systems I course at Wayne State University to help students learn relational algebra through data driven workflow orchestration in order to perform sophisticated relational algebra operations. Supported by Wayne State Internal Learning Community Fellowship.

Honors and Awards

- **Wayne State University**
  - Graduate Student Travel Award - 2014,2015,2016
  - Graduate Research Assistantship - 2015,2016,2017
  - Graduate Student Assistantship (Budget Office) - 2013,2014
  - Graduate Teaching Assistantship - 2011,2012
  - Learning Community Fellowship - 2013,2014
  - Learning Community Peer Mentor Award for Computational Thinking - 2013
- **Ford Motor Company**
  - Web Data Mining Fellowship- 2015
- **Union Bank Of California**
  - DB Group Best Team Lead Award - 2011
- **Kaiser Permanente**
  - Best Application Programmer Award - 2009
- **Governors State University**
  - Computer Science Club Best Student Award - 2007
  - Graduate Teaching Assistantship - 2006,2007

- **RMK Engineering College**
  - Best Student Award for Merit - 2005

Professional Service and Leadership

- **Paper review coordinator**
  - Managed several teams of faculty members and graduate students from several universities to review research articles for IEEE International Conference on Cloud Computing (CLOUD 2014).

- **Session chair**
  - IEEE International Conference on Services Computing (SCC), Santa Clara, CA, 2013.
  - International Conference on Machine Learning and Applications, Detroit, MI, 2014.

- **Reviewer for journals**
  - IEEE Transactions on Services Computing (TSC), 2015.
  - International Journal of Big Data (IJBD), 2015.
  - IEEE Computing in Science and Engineering (IEEE CiSE), 2014.

- **Reviewer for conferences and workshops**
  - IEEE International Conference on Cloud Computing (CLOUD), 2013, 2014, 2015.
  - IEEE International Conference on Services Computing (SCC), 2014.
  - IEEE International Conference on Web Services (ICWS), 2013, 2014, 2015, 2016.
  - IEEE International Conference on Mobile Services (MS), 2014.
  - IEEE International Conference on Big Data Computing Service and Applications (BigDataService), 2015.
  - International Workshop on Workflow Management in Service and Cloud Computing (WMSC), 2012.

- Mentored for a month two graduate students who worked on developing a benchmark for scientific workflow provenance management system.

Professional Organization Membership

- Senior member and lead researcher and developer at the Big Data Research Lab, Wayne State University.
- Lead Organizer for the computational thinking learning community group at Wayne State University.
- Ford OpenXC Open Source Application Developers Community
- Detroit Hadoop Developers Meetup Community
- Detroit Casandra Developers Meetup Community
- Governors State University Computer Science Club Alumni Group
- Anna University Alumni Group
- Database Developers Of Los Angeles Meetup Group
- Union Bank Of California DB Developers Group
- Kaiser Permanente Application Developers Group
- Member of the IEEE and ACM.

References

** Available upon request.