Arun Kalyanasundaram

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EDUCATION

Ph.D. in Societal Computing GPA: 4.00 Aug. 2013 – Present
Carnegie Mellon University
Institute for Software Research, School of Computer Science

Master of Technology in Computer Science GPA: 3.89 Jul. 2011
International Institute of Information Technology Bangalore (IIIT-B)

WORK EXPERIENCE

Microsoft Corporation, Redmond – *Research Intern* May 2016 – Aug. 2016

- A Case study of open-source projects: Identified best practices for building communities and developed metrics to assess community engagement.

VMware Inc., Palo Alto – *Performance Intern* May 2015 – Aug. 2015

- Performance evaluation of a cloud computing platform: Developed an autoscaler service, a cloud native app benchmark and designed workloads using Apache JMeter.

Hewlett-Packard Company, India - *Senior Software Engineer* Jul. 2011 – Jul. 2013

- Experiments on Amazon Mechanical Turk. E.g. Referral mechanism using Facebook integration.

Hewlett-Packard Labs, India - *Research Intern* Jan. 2011 – Jun. 2011

- Identify influential users in a social network: Designed a new algorithm, a mathematical proof of its performance, evaluated its efficiency, and implemented an illustrative app on Twitter.

Novell Inc., India - *Senior Software Engineer* Jul. 2007 – Jul. 2009

- SUSE Linux Operating system: Developed package management features, led a team of eight engineers.

GRADUATE COURSEWORK

Applied Machine Learning (A+), Computational Modeling (A+), Dynamic Network Analysis (A), Distributed Computing (A), Operating Systems (A), Computer Architecture (A)

TECHNICAL SKILLS

Java, R, Python, JavaScript, HTML / CSS, C/C++, Weka, SQL, Matlab

RECENT ACADEMIC PROJECTS

Measuring Coordination Costs of Managing External Dependencies in Open Source Software Ecosystems

- Extracted a large dataset of issues from several GitHub projects and built statistical models (zero inflated negative binomial regression and a linear mixed-effects model) to quantify coordination costs and evaluate the factors associated with it.

A Machine Learning Approach to Automatically Label Issues on GitHub

- Predict labels assigned to issues on GitHub. Both text and social features were used in a Stacked classifier in Weka (also modified its source code).

An Agent-based model of Edit Wars in Wikipedia

- Estimate the time taken for an edit war to reach consensus. Developed a multi-agent model of the behavior of editors on Wikipedia.

Deadlock Detection in JAVA and C# Libraries using Static Analysis

- Developed a parser to generate method invocation graphs from C# CIL (Common Intermediate Language) and Java disassembled code to detect cycles in the call graph.

PEER-REVIEWED PUBLICATIONS

2017 **A. Kalyanasundaram**, C. Bogart, E. Trainer, J. Herbsleb

My Code is Broken But It's Not My Fault: Coordination Costs of Managing External Dependencies
(In Submission, ICSE '17) 39th International Conference on Software Engineering

2016 E. Trainer, **A. Kalyanasundaram**, C. Chaihirunkarn, J. Herbsleb

How to Hackathon: Socio-Technical Tradeoffs in Brief, Intensive Collocation
(CSCW '16) 19th ACM Conference on Computer-Supported Cooperative Work & Social Computing

2015 **A. Kalyanasundaram**, W. Wei, K. Carley, J. Herbsleb

An Agent Based Model of Edit Wars in Wikipedia: How and When is Consensus Reached
(WSC '15) IEEE Winter Simulation Conference

2015 E. Trainer, C. Chaihirunkarn, **A. Kalyanasundaram**, J. Herbsleb

From Personal Tool to Community Resource: What's the Extra Work and Who Will Do It?
(CSCW '15) 18th ACM Conference on Computer-Supported Cooperative Work & Social Computing

2014 E. Trainer, C. Chaihirunkarn, **A. Kalyanasundaram**, J. Herbsleb

Community Code Engagements: Summer of Code & Hackathons for Community Building…
(GROUP '15) 18th International Conference on Supporting Group Work

2012 P. Chandra, **A. Kalyanasundaram** *(Equal Contributions) [Best Paper Nomination]*

A Network Pruning Based Approach for Subset-Specific Influential Detection
(WebSci '12) 4th Annual ACM Web Science Conference

2012 **A. Kalyanasundaram**, B. Roy, S. Rao

Exploiting Data Parallelism in SELinux Using a Multicore Processor
(CSI '12) 47th Annual National Convention of Computer Society of India

2011 **A. Kalyanasundaram**, R. Lalkhanwar, S. Rao

Fail-Stop Distributed Combinatorial Auctioning Systems with Fair Resource Allocation
(CASE '11) IEEE Conference on Automated Science and Engineering

PATENTS

2015 P. Chandra, **A. Kalyanasundaram**

Task Assignment in Crowdsourcing
US Patent 20,150,363,741 A1, 2015