

# Emaad Ahmed Manzoor

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| EDUCATION                 | <b>Stony Brook University, USA</b> <b>2015 –</b><br>Doctor of Philosophy, Computer Science. GPA: 3.89 / 4.0<br><i>Advisor:</i> Leman Akoglu.  |
|                           | <b>King Abdullah University of Science and Technology, Saudi Arabia</b> <b>2013 – 2015</b><br>Master of Science, Computer Science. GPA: 3.96 / 4.0<br><i>Advisor:</i> Panos Kalnis. <i>Thesis title:</i> Scheduling broadcasts in a network of timelines.   |
|                           | <b>Birla Institute of Technology and Science - Pilani, India</b> <b>2008 – 2012</b><br>Bachelor of Engineering (Honours), Computer Science. GPA: 8.17 / 10.0<br><i>Co-op host organization:</i> Yahoo!, Bangalore, India.   |
| RESEARCH<br>EXPERIENCE    | <b>Securing Systems with Streaming Heterogenous Graph Mining</b> <b>Apr 2015 –</b><br><i>Advised by Leman Akoglu, DATA Lab, Stony Brook University.</i><br>Discovering advanced persistent threats from system event log streams.<br>Project page: <a href="http://www3.cs.stonybrook.edu/~emanzoor/streamspot/">http://www3.cs.stonybrook.edu/~emanzoor/streamspot/</a>  |
|                           | <b>Scheduling Broadcasts in a Network of Timelines</b> <b>Jan 2014 – May 2015</b><br><i>Advised by Panos Kalnis, InfoCloud Research Group, KAUST.</i><br>Quantified the interactions between behavioural phenomena that influence attention in networks of timelines. Designed broadcast scheduling algorithms to maximize the expected attention obtained. <ul style="list-style-type: none"><li>• Introduced and quantified monotony aversion exhibited by social network users with timelines.</li><li>• Formulated the timeline information exchange process and an attention potential objective function.</li><li>• Framed the optimization problem as a nonlinear integer program, presented and validated algorithms.</li></ul> |
|                           | <b>Detecting Malware Android Applications</b> <b>Aug – Dec, 2013</b><br><i>Advised by Xiangliang Zhang, MINE Lab, KAUST.</i><br>Applied graphical models from natural language processing to an Android permission dataset to reduce dimensionality in an interpretable manner. Evaluated its performance on a malware classification task. <ul style="list-style-type: none"><li>• Reformulated the classification task as an NLP problem, with permissions forming the vocabulary.</li><li>• Reduced dimensionality while remaining interpretable using Latent Dirichlet Allocation.</li><li>• Evaluated the subsequent classification performance of various machine learning algorithms.</li></ul>                                  |
| PUBLICATIONS<br>& PATENTS | <u>Emaad Ahmed Manzoor</u> , Sadegh Momeni, Venkat N. Venkatakrishnan, Leman Akoglu. <i>Fast Memory-Efficient Anomaly Detection in Streaming Heterogenous Graphs</i> . Under submission, 2016.<br><u>Emaad Ahmed Manzoor</u> , Haewoon Kwak and Panos Kalnis. <i>Scheduling Broadcasts in a Network of Timelines</i> . Under preparation, 2015 –.<br><u>Emaad Ahmed Manzoor</u> and Panos Kalnis. <i>Method and apparatus for scheduling broadcasts in social networks</i> . US Provisional Application 62/118,570, filed February 2015.  |

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| PROFESSIONAL<br>EXPERIENCE | <p><b>Quantitative Engineering Design</b>, San Francisco. Independent Consultant. <b>Apr 2015 –</b><br/>Designing fault-tolerant distributed systems and algorithms for online learning from data streams.</p> <p><b>Oregon State University</b>, Corvallis. Google Summer of Code Intern. <b>May – Aug, 2014</b><br/>Designed and developed a framework that enables running IPMI operations on datacenter machines from systems that lack the standard IPMI utilities, including devices like Android smartphones.</p> <ul style="list-style-type: none"> <li>Designed and developed a REST service enabling IPMI operations over HTTP.</li> <li>Designed and developed an extensible, hierarchical CLI that delegates to the REST service.</li> <li>Designed and implemented mechanisms for fine-grained user-machine permission management.</li> </ul> <p><b>Yahoo!</b>, Bangalore. Software Engineer. <b>Jul 2012 – Aug 2013</b><br/>Built a streaming system for event detection from live content feeds like Twitter, Facebook and newswire. Reduced event detection latency by over 600%. Powers <i>Trending Now</i> on the Yahoo! homepage.</p> <ul style="list-style-type: none"> <li>Wrote Storm components for streaming n-gram counting and cardinality estimation.</li> <li>Designed and evaluated HBase schemas to minimize the duration of failure recovery.</li> <li>Wrote adapters to preprocess source content from Kafka before routing it to Storm.</li> </ul> <p><b>Tachyon Technologies</b>, Bangalore. Research Intern. <b>May – July, 2012</b><br/>Designed algorithms to automatically transform comic book photographs into device-friendly comic panels. Advised by CEO and MIT TR35 awardee Ram Prakash Hanumanthappa.</p> <ul style="list-style-type: none"> <li>Developed a fast algorithm to de-warp photographs of flat book pages.</li> <li>Implemented an algorithm from the low-level vision literature to flatten colour gradients.</li> <li>Built an Android app interfacing with my algorithms in MATLAB over a Python HTTP bridge.</li> </ul> <p><b>Yahoo!</b>, Bangalore. Software Engineer Intern. <b>Jul – Dec, 2011</b><br/>Extended the event detection system to be centrally configurable and multi-threaded. Reduced deployment time from days to a few minutes. Accepted a full-time position (offered to 3/14 interns).</p> <ul style="list-style-type: none"> <li>Wrote an XML-based configuration system that also enabled fine-grained load balancing.</li> <li>Refactored code to process multiple locales in parallel while balancing per-machine load.</li> <li>Implemented a research prototype to detect geographically and demographically niche events.</li> </ul> <p><b>University of Massachusetts</b>, Lowell. MVHub Summer of Code Intern. <b>Jun – Sep, 2011</b><br/>Built a Debian package for MVHub, a directory of non-profit services maintained by the Community Software Lab at the University of Massachusetts, Lowell.</p> <ul style="list-style-type: none"> <li>Wrote configuration scripts as per the Debian package specifications.</li> <li>Wrote Perl scripts to automate building and updating the Debian package.</li> <li>Wrote a Launchpad recipe and set up a PPA to conveniently host and install the package from.</li> </ul> |
| AWARDS                     | <ul style="list-style-type: none"> <li>Worldwide Top 100 (of 1720 teams), IEEE Xtreme 8.0 Programming Competition. <b>2015</b></li> <li>Best Mashery Hack, PennApps X, Philadelphia (sponsored by Intel). <b>2014</b></li> <li>International Travel Grant, PennApps X, Philadelphia (sponsored by PennApps). <b>2014</b></li> <li>King Abdullah University of Science and Technology Fellowship. <b>2013</b></li> <li>Erasmus Mundus LCT Masters Scholarship<sup>1</sup> (awarded to 4 international applicants). <b>2013</b></li> <li>Employee Performance Bonus, Yahoo!. <b>Q2, Q3 2013</b></li> <li>Winner, Random Hacks of Kindness, Bangalore. <b>2011</b></li> <li>Consultancy Development Cell Fellowship, Ministry of Science and Technology of India. <b>2009</b></li> </ul>   |

<sup>1</sup>Declined, having accepted the KAUST Fellowship.

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| TALKS     | • <i>Scheduling Broadcasts in a Network of Timelines</i> . Thesis Defense.  | <b>May 2015</b>    |
|           | • <i>Time-Inconsistent Planning</i> . InfoCloud Seminar.  | <b>May 2014</b>    |
|           | • <i>Time-sensitive Diffusion Network Inference</i> . Machine Learning Project Presentation.  | <b>May 2014</b>    |
|           | • <i>Reinforcement Learning</i> . Machine Learning Course Lecture.  | <b>Apr 2014</b>    |
|           | • <i>Finding Communities in Networks</i> . Data Mining Course Lecture.  | <b>Nov 2013</b>    |
|           | • <i>Reviving Failed Classifiers with Random Forests</i> . Tech talk at Yahoo!.   | <b>May 2013</b>    |
|           | • <i>Building a Linux cluster with Beanstalkd</i> . Tutorial at PyCon India.  | <b>Sep 2012</b>    |
|           | • <i>quFiles: The right file at the right time</i> . Data Storage Technologies Seminar.   | <b>Nov 2012</b>    |
| TEACHING  | • <i>Programming Languages and Compilers</i> . Course project design and grading.   | <b>Spring 2012</b> |
|           | • <i>MIT Indian Mobile Initiative</i> . Android development lab sessions and tutoring.  | <b>Summer 2011</b> |
|           | • <i>Software Development for Portable Devices</i> . Google-funded teaching assistant.  | <b>Spring 2011</b> |
| SERVICE   | External reviewer for WWW, EuroSys, VLDBJ, CIKM.<br>Organised TechFM, a weekly technical talk series at Yahoo! on math, science and technology. |                    |
| LANGUAGES | C++, Python, Java, C.   |                    |