

# Emaad Ahmed Manzoor

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EDUCATION	<b>Carnegie Mellon University – H. John Heinz III College, USA</b> <b>2016 –</b> Ph.D., Information Systems. Advisor: Leman Akoglu.
	<b>Stony Brook University, USA</b> <b>2015 – 2016</b> Ph.D., Computer Science. Advisor: Leman Akoglu. (transferred)
	<b>King Abdullah University of Science and Technology, Saudi Arabia</b> <b>2013 – 2015</b> M.S., Computer Science. Advisor: Panos Kalnis. GPA: 3.96 / 4.0 Thesis: Scheduling Broadcasts in a Network of Timelines.
	<b>Birla Institute of Technology and Science - Pilani, India</b> <b>2008 – 2012</b> Bachelor of Engineering (Honors), Computer Science. GPA: 8.17 / 10.0 Co-op host: Yahoo!, Bangalore, India.
PUBLICATIONS & PATENTS	<u>Emaad Manzoor</u> , Leman Akoglu. <i>RUSH! Targeted Time-limited Coupons via Purchase Forecasts</i> . KDD 2017. ( <b>applied data science track, top 85/396 submissions</b> ) <u>Emaad Manzoor</u> , Sadegh M. Milajerdi, Leman Akoglu. <i>Fast Memory-Efficient Anomaly Detection in Streaming Heterogenous Graphs</i> . KDD 2016. ( <b>research track oral, top 70/784 submissions</b> ) <u>Emaad Ahmed Manzoor</u> , Panos Kalnis. <i>Method and apparatus for scheduling broadcasts in social networks</i> . Filed February 2015. <a href="https://www.google.com/patents/WO2016132332A1">https://www.google.com/patents/WO2016132332A1</a> . <u>Emaad Ahmed Manzoor</u> , Haewoon Kwak, Panos Kalnis. <i>Scheduling Broadcasts in a Network of Timelines</i> . Unpublished manuscript, 2015. <a href="http://arxiv.org/abs/1610.06052">http://arxiv.org/abs/1610.06052</a> .
AWARDS	<ul style="list-style-type: none"><li>SBU Institute of Advanced Computational Science Young Writer’s Award (\$500). <b>2016</b></li><li>ACM SIGKDD Student Travel Award (\$750). <b>2016</b></li><li>Stony Brook University Special CS Department Chair Fellowship (\$8,000). <b>2015</b></li><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 (\$500). <b>2014</b></li><li>King Abdullah University of Science and Technology Fellowship (\$140,000)<sup>1</sup>. <b>2013</b></li><li>Erasmus Mundus LCT Masters Scholarship (EUR 40,000)<sup>2</sup>. <b>2013</b></li><li>Employee Performance Bonus, Yahoo! (INR 35,000). <b>2012, 2013</b></li><li>Google Teaching Scholarship, BITS - Pilani, Goa Campus (INR 16,000)<sup>3</sup>. <b>2011</b></li></ul>
RESEARCH	<b>Predicting Purchase Behavior from Financial Sensor Logs</b> <b>Aug 2016 – Aug 2017</b> <ul style="list-style-type: none"><li>Novel “budgeted” point process to predict purchase times and categories.</li><li>Model interpretability reveals patterns useful to digital and mobile coupon marketing strategists.</li></ul> <b>Detecting Anomalous Networks in Edge Streams</b> <b>Aug 2015 – Aug 2016</b> <ul style="list-style-type: none"><li>Online clustering-based anomaly detection on graph objects with node and edge types.</li><li>Applied to real-time detection of malicious software behavior from system call log streams.</li></ul> <b>Scheduling Broadcasts in a Network of Timelines</b> <b>Jan 2014 – May 2015</b> <ul style="list-style-type: none"><li>Quantified/measured the impact of “monotony aversion” on attention in social network timelines.</li><li>Designed a broadcast scheduling algorithm to maximize the attention received under competition.</li></ul>

<sup>1</sup>\$70,000/year for two years including tuition (\$35,000), health insurance (\$15,000), stipend (\$20,000) and housing.

<sup>2</sup>Declined. Category A scholarship: EUR 20,000/year for two years. Awarded to 4 international applicants.

<sup>3</sup>For the undergraduate Software Development for Portable Devices course taught by Prof. Mangesh Bedekar.

INDUSTRIAL EXPERIENCE (FULL-TIME)	<p><b>Yahoo!</b>, Bangalore. Software Engineer. <span style="float: right;"><b>Jul 2012 – Aug 2013</b></span></p> <ul style="list-style-type: none"> <li>• Built (team of 4) a system for streaming “trending-topic” detection from user-generated content.</li> <li>• Large impact within the company, improved over previous trend-detection latency by 600%.</li> <li>• Implemented with Apache Storm, Kafka, HBase and Java.</li> </ul>
INDUSTRIAL & RESEARCH EXPERIENCE (INTERN)	<p><b>Max Planck Institute for Software Systems</b>, Kaiserslautern. Research Intern. <span style="float: right;"><b>Summer 2017</b></span></p> <p>Advised by Manuel Gomez-Rodriguez.</p> <ul style="list-style-type: none"> <li>• Research on networks and machine learning.</li> </ul> <p><b>Quantitative Engineering Design</b>, San Francisco (remote). Research Intern. <span style="float: right;"><b>Summer 2015</b></span></p> <p>Advised by cofounders William Wu (Ph.D., EE, Stanford) and Jiehua Chen (Ph.D., Statistics, Stanford).</p> <ul style="list-style-type: none"> <li>• Designed and developed an online variant of a Bayesian model to predict financial fraud.</li> <li>• Developed a reference implementation of Mondrian Forests (online random forests).</li> <li>• Designed a distributed system architecture to enable online training of a classifier ensemble.</li> </ul> <p><b>Oregon State University</b>, Corvallis (remote). Google Summer of Code Intern. <span style="float: right;"><b>Summer 2014</b></span></p> <ul style="list-style-type: none"> <li>• Designed and developed a REST service to enable IPMI operations over HTTP.</li> <li>• Designed and developed an extensible, hierarchical CLI that delegates to the REST service.</li> <li>• Design and implementation discussed at <a href="http://eyeshalfclosed.com/tags/#gsoc2014-ref">eyeshalfclosed.com/tags/#gsoc2014-ref</a>.</li> </ul> <p><b>Tachyon Technologies</b>, Bangalore. Research Intern. <span style="float: right;"><b>Summer 2012</b></span></p> <p>Advised by cofounder and MIT TR35 awardee Ram Prakash Hanumanthappa.</p> <ul style="list-style-type: none"> <li>• Developed a fast, simple and effective algorithm to de-warp photographs of flat book pages.</li> <li>• Implemented an algorithm from the low-level vision literature to flatten color gradients.</li> <li>• Applied algorithms to transform photos of comic book pages into web-ready digital comic panels.</li> <li>• Packaged into an Android app interfacing with my code in MATLAB over a Python HTTP bridge.</li> </ul> <p><b>Yahoo!</b>, Bangalore. Software Engineer Intern. <span style="float: right;"><b>Fall 2011</b></span></p> <ul style="list-style-type: none"> <li>• Extended the “trending-topic” detection system to be centrally configurable and multi-threaded.</li> <li>• Implemented a research prototype to detect geographically and demographically niche events.</li> <li>• Offered and accepted a full-time position (top 3/14 interns from BITS – Pilani University).</li> </ul> <p><b>University of Massachusetts</b>, Lowell (remote). MVHub Summer of Code Intern. <span style="float: right;"><b>Summer 2011</b></span></p> <ul style="list-style-type: none"> <li>• Built a Debian package for MVHub, a directory of non-profit services.</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>
TEACHING	<ul style="list-style-type: none"> <li>• Programming Languages and Compiler Design. Course project design and grading. <span style="float: right;"><b>Spring 2012</b></span></li> <li>• MIT Indian Mobile Initiative. Android development lab sessions and tutoring. <span style="float: right;"><b>Summer 2011</b></span></li> <li>• Software Development for Portable Devices. <span style="float: right;"><b>Spring 2011</b></span></li> </ul>
SERVICE	<ul style="list-style-type: none"> <li>• External reviewer for SocInfo, WWW, EuroSys, VLDBJ, CIKM.</li> <li>• Organized TechFM, a weekly technical talk series at Yahoo! on math, science and technology.</li> <li>• Frequent participant at Random Hacks of Kindness.</li> </ul>
LANGUAGES	<ul style="list-style-type: none"> <li>• Analysis: Python (preferred)</li> <li>• Performance: C++ (preferred), Java (for distributed systems)</li> </ul>

SELECTED	All slides available at <a href="http://speakerdeck.com/emaadmanzoor">http://speakerdeck.com/emaadmanzoor</a> .	
TALKS	Videos available at <a href="http://eyeshalfclosed.com/talks/">http://eyeshalfclosed.com/talks/</a> .	
	<ul style="list-style-type: none"> <li>• <i>Fast Memory-efficient Anomaly Detection in Streaming Heterogenous Graphs</i>. <ul style="list-style-type: none"> <li>– ACM SIGKDD Conference (research-track oral presentation). <b>Aug 2016</b></li> <li>– CMU Database Group Seminar (hosted by Christos Faloutsos). <b>Oct 2016</b></li> <li>– RSA Laboratories (hosted by Zhou Li and Kevin Bowers). <b>Nov 2016</b></li> <li>– CMU Statistical Networks Seminar (hosted by Cosma Shalizi). <b>Nov 2016</b></li> </ul> </li> <li>• <i>Scheduling Broadcasts in a Network of Timelines</i>. Masters Thesis Defense, KAUST. <b>May 2015</b></li> <li>• <i>Time-Inconsistent Planning</i>. InfoCloud Research Group Seminar, KAUST. <b>May 2014</b></li> <li>• <i>Reviving Failed Classifiers with Random Forests</i>. Tech talk at Yahoo!. <b>May 2013</b></li> <li>• <i>Building a Linux cluster with Beanstalkd</i>. Tutorial at PyCon India. <b>Sep 2012</b></li> </ul>	

SELECTED All completed courses listed were awarded grades A- or higher. Fall 2017 courses are upcoming.

GRADUATE  
COURSEWORK

### **Economics**

- Economining (Dokyun Lee, CMU) **Fall 2017**
- Introduction to Econometric Theory (Edson Severnini, CMU) **Spring 2017**
- Microeconomics (Brian Kovak, CMU) **Fall 2016**

### **Statistics & Machine Learning**

- Convex Optimization (Aarti Singh, CMU) **Fall 2017**
- Advanced Introduction to Machine Learning (Barnabas Poczos, CMU) **Fall 2017**
- Intermediate Statistics (Larry Wasserman, CMU) **Fall 2016**

### **Computer Science**

- Operating Systems (Michael Ferdman, Stony Brook University) **Fall 2015**
- Theory of Database Systems (Fusheng Wang, Stony Brook University) **Fall 2015**
- Artificial Intelligence (I.V. Ramakrishnan, Stony Brook University) **Fall 2015**
- Computational Complexity (Antoine Vigneron, KAUST) **Fall 2014**
- Probability and Random Processes (Mohammed-Slim Alouini, KAUST) **Fall 2014**
- Machine Learning (Xiangliang Zhang, KAUST) **Spring 2013**
- Advanced Topics in Data Management (Panos Kalnis, KAUST) **Spring 2013**
- Data Analytics (Xin Gao, KAUST) **Fall 2013**
- Computing Systems and Concurrency (Hany Ramadan, KAUST) **Fall 2013**
- Design and Analysis of Algorithms (Mikhael Moshkov, KAUST) **Fall 2013**