Muhammad Imran

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RESEARCH INTERESTS

Understanding the role of Social Media during mass convergence events by using big data analysis techniques such as text classification, data mining, and interactive machine learning.

Keywords: *Social Computing, Crisis Informatics, Crowdsourcing, Web Engineering*

EDUCATION

Ph.D. Computer Science   November 2009 – March 2013
University of Trento, Trento, Italy.
Concentration: Computer Science

M.Sc. Computer Science   September 2005 – September 2007
Mohammad Ali Jinnah University, Islamabad, Pakistan.
Concentration: Computer Science

B.S. Computer Science   January 2000 – December 2003
Allama Iqbal Open University, Islamabad, Pakistan.
Concentration: Computer Science

HONORS & AWARDS

- **Best Paper Award**, 10th International Conference on Information Systems for Crisis Response and Management (ISCRAM) held in Baden-Baden, Germany in 2013.
- Recipient of scholarship from Opera Universitaria Italy for four years (2009-2013) to pursue PhD studies.
- Achieved distinguished position (1st place) in the Master of Science (Computer Science) degree in 2007.
- Awarded 2nd prize in all Pakistan universities programming competition in 2006.

SELECTED PUBLICATIONS

1. Muhammad Imran, Carlos Castillo, Fernando Diaz, Sarah Vieweg: Processing Social Media Messages in Mass Emergency: A Survey. *ACM Computing Surveys.* 47, 4, Article 67 (June 2015), 38 pages. DOI=10.1145/2771588 http://doi.acm.org/10.1145/2771588

2. Muhammad Imran, Carlos Castillo. Towards a Data-driven Approach to Identify Crisis-Related Topics in Social Media Streams. *Social Web for Disaster Management (SWDM) at the 24th International Conference on World Wide Web (WWW)*, 2015. Italy.

3. Muhammad Imran, Carlos Castillo, Ji Lucas, Patrick Meier, and Jakob Rogstadius. Coordinating Human and Machine Intelligence to Classify Microblog Communications in Crises. *11th International Conference on Information Systems for Crisis Response and Management*, 2014. Pennsylvania, USA.

4. Muhammad Imran, Carlos Castillo, Ji Lucas, Patrick Meier, and Sarah Vieweg. AIDR: Artificial Intelligence for Disaster Response. *23th International Conference on World Wide Web (WWW)*, 2014, Seoul, Korea.

5. Muhammad Imran and Carlos Castillo. Volunteer-powered Automatic Classi-fication of Social Media Messages for Public Health in AIDR. *Public Health in the Digital Age workshop in the 23th International Conference on World Wide Web (WWW)*, 2014, Seoul, Korea.

6. Sarah Vieweg, Carlos Castillo and Muhammad Imran. Integrating Social Media Communications into the Rapid Assessment of Sudden Onset Disasters. *6th International Conference on Social Informatics (SocInfo)*, 2014.

7. Muhammad Imran, Shady Elbassuoni, Carlos Castillo, Fernando Diaz and Patrick Meier. Extracting Information Nuggets from Disaster-Related Mes-sages in Social Media. *10th International Conference on Information Systems for Crisis Response and Management (ISCRAM)*, May 2013, Baden-Baden, Germany.

8. Muhammad Imran, Shady Elbassuoni, Carlos Castillo, Fernando Diaz and Patrick Meier. Practical Extraction of Disaster-Relevant Information from So-cial Media. *Social Web for Disaster Management (SWDM) at the 22th In-ternational Conference on World Wide Web (WWW)*, 2013, Rio de Janeiro, Brazil.

9. Muhammad Moeen Uddin, Muhammad Imran, and Hassan Sajjad. Under-standing Types of Users on Twitter. To appear in *SocialCom-Standford 2014*, May 2014, CA, USA.

10. Soudip Roy Chowdhury, Muhammad Imran, Muhammad Rizwan Asghar, Si-hem Amer-Yahia and Carlos Castillo. Tweet4act: Using Incident-Specific Pro-files for Classifying Crisis-Related Messages. *10th International Conference on Information Systems for Crisis Response and Management (ISCRAM)*, May 2013, Baden-Baden, Germany.

11. Muhammad Imran, Syed Zeeshan Haider Gillani and Maurizio Marchese. A Real-time Heuristic-based Unsupervised Method for Name Disambiguation in Digital Libraries. *2nd Workshop on Mining Scientific Publications at the Joint Conferences on Digital Libraries (JCDL)*, July 2013, Indianapolis, USA.

12. Muhammad Imran, Stefano Soi, Felix Kling, Florian Daniel, Fabio Casati and Maurizio Marchese. On the Systematic Development of Domain-Specific Mashup Tools for End-Users. *International Conference on Web Engineering (ICWE)*, July 2012, Berlin, Germany.

13. Florian Daniel, Muhammad Imran, Stefano Soi, Antonella De Angeli, Christo-pher R. Wilkinson, Fabio Casati and Maurizio Marchese. Developing Mashup Tools for End-Users: On the Importance of the Application Domain. *Interna-tional Journal of Next-Generation Computing (IJNGC)*, 2012.

14. Muhammad Imran, Felix Kling, Stefano Soi, Florian Daniel, Fabio Casati and Maurizio Marchese. ResEval Mash: A Mashup Tool for Advanced Research Evaluation. *21th International Conference on World Wide Web (WWW)*, 2012, France, Lyon.

15. Muhammad Imran, Florian Daniel, Fabio Casati, Maurizio Marchese. ResEval Mash: A Mashup Tool that Speaks the Language of the User. *ACM CHI Conference on Human Factors in Computing Systems (CHI)*, 2012, Austin, USA.

(Full publications list at http://mimran.me/publications)

RESEARCH EXPERIENCE

Scientist   December 2014 – Present
Qatar Computing Research Institute, Doha, Qatar
Responsibilities: Focusing on mining Online Data Streams such as Social Media data streams using hybrid approaches in which machines and humans work together. Usually, human intervention is required to teach machines or verify machine generated results.

Post-doctoral Researcher   April 2013 – December 2014
Qatar Computing Research Institute, Doha, Qatar
Responsibilities: Conducted research on the application of Social Media mining methods to problems in the humanitarian crises. Humanitarian crisis computing seeks to rapidly identify situational awareness, actionable and tactical information in the big crisis data available on Social Media. Currently, leading research and technical directions of AIDR (Artificial Intelligence for Disaster Response) project. The focus of this applied research project is to use Social Media microblogging platforms like Twitter during mass convergence events and humanitarian crises in an effort to mine and classify information that can help stakeholders gain situation awareness and in their decision making processes.

Research Associate   June 2012 – September 2012
Qatar Computing Research Institute, Doha, Qatar
Responsibilities: Mainly worked on two different research projects. The first project focused on real-time analysis of Social Media platforms such as Twitter, to predict life span of NEWS articles. Analysis of various parameters associated with articles like social media exposure in terms of their spread, first few hours visits, discussion was conducted using time-series analysis techniques. The second project focused on classification and extraction of useful information using machine learning techniques from disaster-related messages posted on Twitter to assist stakeholders in disaster response.

PhD Candidate   November 2009 – March 2013
University of Trento, Trento, Italy
Responsibilities: Worked on the research direction of end-user development. EUD research tries to bring programming closer to the needs of end users. My PhD dissertation introduced the concept of Domain-Specific Mashups in which Web 2.0 technologies were employed to empower and enable non-programmers, non-technical users to develop ad-hoc and situational applications to perform complex data aggregation, processing and analysis tasks.

TECHNICAL EXPERIENCE

Database Administrator   July 2007 – August 2008
National University of Science & Technology (NUST), Islamabad, Pakistan
Responsibilities: I was responsible for the installation, configuration, upgrading, administration, monitoring, maintenance, and security of Oracle database systems. Moreover, performance tuning, query execution, tuning execution plans, were among other important responsibilities.

Java Developer (Intern)   February 2009 – May 2009
OKKAM, Trento, Italy
Responsibilities: Assisted OKKAM research team to analyze big log files of different servers to investigate how complex operations execute and behave under different circumstances. For example, this includes checking how much time a search query took to find an entity in the OKKAM entities database, or why certain part of a query failed.

PROFESSIONAL ACTIVITIES

- **Track Co-chair:**
  - International Conference on Information Systems for Crisis Response and Management (ISCRAM 2015).

- **Program committee member:**
  - International Conference on Digital Health (DL 2015).
  - International Workshop on Social Web for Disaster Management (SWDM 2015).
  - International Conference on Information Systems for Crisis Response and Management-Mediterranean (ISCRAM-Med 2014, 2015).
  - Workshop on Standards and Practices in Large-Scale Social Media Research (2015).
  - International Conference on Emerging Technologies (ICET 2014).
  - Computational Social Science Winter Symposium (CSSWS 2014).

- **Reviewer:**
  - Computer Networks Journal (2014).
  - International Conference on Web Information System Engineering (WISE 2014).
  - International Conference on Information Systems for Crisis Response and Management (ISCRAM 2014, 2015).
  - ACM Web Science Conference (WebSci 2014).
  - International Conference on Web Engineering (ICWE 2012).

- **Invited talks:**
  - Machine Learning and Data Analytics Symposium (MLDA 2014).

- **Professional member:**
  - Association for Computing Machinery (ACM) professional member (since 2012).
  - ISCRAM community professional member (since 2012).

TEACHING EXPERIENCE

- Service-Oriented Architecture and Applications – course held by Prof. Maurizio Marchese at the University of Trento, 2010 – 2011.
- Laboratory for Service Design and Engineering – course held by Prof. Maurizio Marchese at the University of Trento, 2011 – 2012.

CERTIFICATIONS

- **Oracle Certified Professional (OCP)**
  Track: Database Administration
  California, USA

TECHNICAL SKILLS

- **Programming:**
  - JAVA— SE, EE, EJBs (expert level)
  - Web Services (RESTFul, SOAP), Hibernate, SAX, JAXB (expert level)
  - Microsoft .NET Framework using C#, ASP.NET and ADO.Net (advance level)
  - Weka: Data Mining Software (advance level)
  - Python (beginner level)

- **Databases:**
  - Oracle 9i, 10g, 11g (expert level)
  - MySQL, MS-SQL Server (advance level)
  - Redis (expert level)

- **Misc. expertise**:

- Good hands on knowledge of OOPS (Object Oriented Programming Structure) and Agile methodology.

- Experience designing and/or developing solutions for a Service Oriented Architecture (SOA).

- Sound knowledge of 3-tier and N-tier layered architecture, and design patterns like Singleton, Factory and MVC.

- Experience using tools such as NetBeans, Eclipse, Visual Studio.Net.

- Experience using technologies such as Maven, BaseCamp, Pivotal Tracker, GIT.

REFERENCES   References available upon request.