Muhammad Imran (PhD)

Research Scientist
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RESEARCH INTERESTS

I work on **Social Media Data Mining for Social Good**. Specifically, I use microblogging platforms such as Twitter during time-critical events such as natural or human-induced disasters to retrieve, classify, extract, and summarize useful information for humanitarian aid[1]. Moreover, I develop computational techniques and technologies useful for stakeholders to gain situational awareness and actionable information for rapid decision-making during time-critical events.

Research areas: *social computing, crisis informatics, data mining, time-critical information retrieval, machine learning, crowdsourced stream processing*

EDUCATION

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

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

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

AWARDS AND GRANTS

Best Insight Paper Award (2019): Received "Best Insight Paper Award" for paper "Identifying Disaster Damage Images Using a Domain Adaptation Approach" at the 16th International Conference on Information Systems for Crisis Response and Management (ISCRAM) in 2019, Valencia, Spain. (Role: Team lead)

Best Paper Runner-up Award (2019): Received "Best Paper Runner-up Award" for paper "CrisisDPS: Crisis Data Processing Services" at the 16th International Conference on Information Systems for Crisis Response and Management (ISCRAM) in 2019, Valencia, Spain. (Role: Team lead)

Best Paper Award (2016): Received "Best Paper Award" for paper "Cross-Language Domain Adaptation for Classifying Crisis-Related Short Messages" at the 13th International Conference on Information Systems for Crisis Response and Management (ISCRAM) in 2016, Rio de Janeiro, Brazil. (Role: First Author)

Best Paper Award (2013): Received "Best Paper Award" for paper " Extracting Information Nuggets from Disaster-Related Messages in Social Media" at the 10th International Conference on Information Systems for Crisis Response and Management (ISCRAM) in 2013, Baden-Baden, Germany. (Role: First Author)

Best Paper Runner-up Award (2017): Received "Best Paper Runner-up Award" for paper "Automatic Image Filtering on Social Networks Using Deep Learning and Perceptual Hashing During Crises" at the 14th International Conference

[1] https://en.wikipedia.org/wiki/Humanitarian_aid

on Information Systems for Crisis Response and Management (ISCRAM), Albi, France. (Role: Team leader)

Grand Prize Winner at the Open Source Software World Challenge (2015): AIDR[2] project awarded the Grand Prize in the 2015 Open Source Software World Challenge. (Role: Team Leader)

Winner of the WISH Innovation Competition (2016): AIDR-SMS technology wins the innovation competition organized by the World Innovation Summit for Health 2016.

Start-up Grant Winner (2015): Qatar Science & Technology Park (QSTP) selected and granted our AIDR project to be launched as a start-up. (Role: Team Leader)

Awarded on the World Intellectual Property Day award: The Ministry of Economy and Commerce Qatar and Qatar University (2017) awarded our AIDR technology for its impactful utilization for improving lives during disasters.

PhD Scholarship Winner (2009-2013): The University of Trento awarded a 3.5 years paid scholarship to pursue my PhD.

Distinguished Position holder in MSc (2007): Obtained a GPA of (3.70/4.0) and stood first among my M.Sc. batch.

MEDIA COVERAGE

Fast Company[3] features and published my interview on our AIDR deployment during the 2018 California wildfires.

Science X[4] features our work published at SIGIR 2018 conference on improving disaster response through Twitter data.

New Scientist[5] features our joint work with UNICEF on using SMS (short messages) to understand public health issues and queries related to AIDS/HIV in Zambia.

WIRED Magazine[6] covers various aspects of AIDR & MicroMappers deployment during the 2013 earthquake in Pakistan.

Nature Journal[7] features the use of our innovative machine learning and crowdsourcing technologies (AIDR & MicroMappers) during the typhoon Haiyan in the Philippines.

BBC News[8] features the digital humanitarian response to the 2015 Nepal earthquake using our humanitarian technologies.

[2] http://aidr.qcri.org/

[3] https://www.fastcompany.com/90269483/how-ai-software-could-help-fight-future-wildfires

[4] https://phys.org/news/2018-07-disaster-response-twitter.html

[5] https://www.newscientist.com/article/2083044-ai-helps-answer-thousands-of-health-queries-in-zambia-via-sms/

[6] http://www.wired.co.uk/news/archive/2013-09/30/digital-humanitarianism

[7] http://www.nature.com/news/crowdsourcing-goes-mainstream-in-typhoon-response-1.14186

[8] http://www.bbc.co.uk/programmes/p02pkd9w

Foreign Affairs[9] discusses our AIDR system deployment during the 2015 Nepal earthquake.

Forbes[10] discusses about the research and development of our machine learning for humanitarian computing work at QCRI.

The Wall Street Journal (WSJ)[11] interviews a former colleague (Patrick Meier) for our joint work on social mapping to help rescue teams with a detailed and data-driven map generated by our humanitarian technologies developed at QCRI during various typhoons in the Philippines.

Mashable[12] highlights the successes of our humanitarian technologies (AIDR & MicroMappers) during various typhoons in the Philippines.

Voice of America[13] features our AIDR and MicroMappers technologies and describes how AI, tweets and texts speed up relief efforts in Nepal during the 2015 earthquake.

Gulf News[14] discusses assisting humanitarian organisations cope with an overflow of information from social media using AIDR technology.

Automated Traders[15] features AIDR deployment during the 2015 Nepal earthquake and discusses how machine learning helps humanitarian agencies turn big data into informed decisive action.

Brookings[16] features how AIDR and MicroMappers technologies are useful for digital humanitarians and disaster response.

Data Drive Journalism[17] features our AIDR technology and the use of machine learning and human computation for humanitarian crises.

Gulf Times[18] publishes the news of the Grand prize award our AIDR technology won in the 2015 Open Source Software World Challenge.

The Peninsula[19] features our Grand prize award won by AIDR technology in

[9] https://www.foreignaffairs.com/articles/nepal/2015-06-01/virtual-aid-nepal

[10] http://www.forbes.com/sites/skollworldforum/2013/05/02/crisis-maps-harnessing-the-power-of-big-data-to-deliver-humanitarian-assistance/#4d2e3f111533

[11] http://www.wsj.com/video/social-mapping-helps-rescuers-in-philippines/F4510A7D-9040-4D89-8852-2F142A7827A2.html

[12] http://mashable.com/2015/02/06/digital-humanitarians/#6G78o2Z9xkqU

[13] http://www.voanews.com/content/drone-pilots-artificial-intelligence-tweets-and-texts-speed-up-relief-efforts-in-nepal/2744051.html

[14] http://gulfnews.com/news/uae/emergencies/netizens-help-respond-to-natural-disasters-1.1594421

[15] http://www.automatedtrader.net/headlines/153695/nepal-earthquake-deploying-ai-in-disaster-relief-efforts

[16] http://www.brookings.edu/blogs/techtank/posts/2015/02/19-digital-humanitarians-meier

[17] http://datadrivenjournalism.net/resources/artificial_intelligence_for_disaster_response_aidr

[18] http://www.gulf-times.com/story/465584/QCRI-wins-top-prize-for-its-technology

[19] http://www.thepeninsulaqatar.com/news/qatar/361216/qcri-system-wins-open-source-software-world-challenge-2015-grand-prize

the 2015 Open Source Software World Challenge.

Qatar News Agency[20] covers the news of the Grand prize award of our AIDR technology in the 2015 Open Source Software World Challenge.

Gulf Times, Arab News, Al Arab, Marhaba Newpaper, Qatar Tribune, The Peninsula, Raya, Qatar News Agency (QNA), Qatar is Booming, Fana News, and QANA[21] publish the news about the AIDR-SMS technology wins The World Innovation Summit for Health (WISH) competition.

SELECTED PUBLICATIONS

Full publications list: https://mimran.me/publications
Google Scholar: https://scholar.google.com/citations?user=z8niHlEAAAAJ

Refereed Journal Articles

1. Xukun Li, Huaiyu Zhang, Doina Caragea, Muhammad Imran. Localizing and Quantifying Infrastructure Damage Using Class Activation Mapping Approaches. Accepted for publication in the Journal of Social Network Analysis and Mining (SNAM), 2019.
2. Reza Mazloom, Hongmin Li, Doina Caragea, Cornelia Caragea, Muhammad Imran. A Hybrid Domain Adaptation Approach for Identifying Crisis-Relevant Tweets. Accepted for publication in the International Journal of Information Systems for Crisis Response and Management (IJISCRAM), Volume 11, Issue 2, 2019.
3. Pakhee Kumar, Ferda Ofli, Muhammad Imran, Carlos Castillo. Detection of Disaster-Affected Cultural Heritage Sites from Social Media Images Using Deep Learning Techniques, ACM Journal on Computing and Cultural Heritage (JOCCH), under review.
4. Christian Reuter, Stefan Stieglitz, Muhammad Imran. Social Media in Conflicts and Crises. The Journal of Behaviour Information Technology (Taylor & Francies), DOI: 10.1080/0144929X.2019.1629025, 2019.
5. Firoj Alam, Ferda Ofli, Muhammad Imran. Descriptive and Visual Summaries of Disaster Events using Artificial Intelligence Techniques: Case Studies of Hurricanes Harvey, Irma, and Maria. The Journal of Behaviour Information Technology (Taylor & Francies), 2019.
6. Firoj Alam, Ferda Ofli, Muhammad Imran. Processing Social Media Images by Combining Human and Machine Computing During Crises. In the International Journal of Human-Computer Interaction (IJHCI), Taylor & Francies, 2018.
7. Luis Fernandez-Luque, Muhammad Imran. Humanitarian Health Computing using Artificial Intelligence and Social Media: A Narrative Literature Review. In the International Journal of Medical Informatics (IJMI), ScienceDirect, 2018.
8. Koustav Rudra, Ashish Sharma, Niloy Ganguly, Muhammad Imran. Classifying and Summarizing Information from Microblogs during Epidemics. In the Journal of Information Systems Frontiers, Springer, 2018.

[20] http://www.qna.org.qa/en-us/News/15120700400062/QCRI-Humanitarian-Technology-Wins-the-Open-Source-Software-World-Challenge-Grand-Prize
[21] http://mimran.me/misc/media_coverage_AIDR_WISH2016.pdf

9. Saptarshi Ghosh, Kripabandhu Ghosh, Debasis Ganguly, Tanmoy Chakraborty, Gareth J. F. Jones, Marie-Francine Moens, and Muhammad Imran. Exploitation of Social Media for Emergency Relief and Preparedness: Recent Research and Trends. In the Journal of Information Systems Frontiers, Springer, 2018.
10. Muhammad Imran, Prasenjit Mitra, Jaideep Srivastava. Enabling Rapid Classification of Social Media Communications During Crises. In the International Journal of Information Systems for Crisis Response and Management, 2017. DOI: 10.4018/IJISCRAM.2016070101.
11. Ferda Ofli, Patrick Meier, Muhammad Imran, Carlos Castillo, Devis Tuia, Nicolas Rey, Julien Briant, Pauline Millet, and Stephane Joost: Combining Human Computing and Machine Learning to Make Sense of Big (Aerial) Data for Disaster Response. In the Big Data Journal, 2016.
12. Muhammad Imran, Carlos Castillo, Fernando Diaz, and Sarah Vieweg: Processing Social Media Messages in Mass Emergency: A Survey. ACM Computing Surveys. 47, 4, Article 67 (June 2015), DOI=10.1145/2771588
13. Florian Daniel, Muhammad Imran, Stefano Soi, Antonella De Angeli, Christopher R. Wilkinson, Fabio Casati and Maurizio Marchese. Developing Mashup Tools for End-Users: On the Importance of the Application Domain. International Journal of Next-Generation Computing (IJNGC), 2012.
14. Christian Reuter, Amanda Hughes, Starr Roxanne Hiltz, Muhammad Imran, Linda Plotnick. Editorial of the Special Issue on Social Media in Crisis Management. In the International Journal of Human-Computer Interaction (IJHCI), 2018.

Book Chapters

1. Muhammad Imran, Firoj Alam, Ferda Ofli, Michael Aupetit. Mitigating the Impact of Extreme Natural Events in Developing Countries. Edited by: R.J. Durrheim and B.G.N. Sewwandi, Daya Publishing House, ISBN: 9789388982160.
2. Muhammad Imran, Patrick Meier, Kees Boersma. Big Data Surveillance and Crisis Management. Edited by: Kees Boersma and Chiara Fonio, Published by: Routledge, ISBN: 978-1-138-19543-1, 2017.
3. Carlos Castillo, Muhammad Imran, Patrick Meier, Ji Kim Lucas, Jaideep Srivastava, Heather Leson, Ferda Ofli, Prasenjit Mitra, et al. Together We Stand—Supporting Decision in Crisis Response: Artificial Intelligence for Digital Response and MicroMappers. Edited by OCHA and partners. Published by: Tudor Rose, World Humanitarian Summit, Istanbul, pp. 93-95, ISBN: 978-0-9568561-8-0, May 2016.
4. Bozzon, Alessandro, Muhammad Imran, Florian Daniel, Fabio Casati. Search Computing, Trends and Development (Lecture Notes in Computer Science / Information Systems and Applications, incl. Internet/Web, and HCI). Stefano Ceri, Marco Brambilla (Editor). 2011, Springer. ISBN: 978-3642196676.

Refereed Conference and Workshop Publications (selected)

1. (**Best Insight Paper Award**) Xukun Li, Doina Caragea, Cornelia Caragea, Muhammad Imran, Ferda Ofli. Identifying Disaster Damage Images Using a Domain Adaptation Approach. In Proceedings of the 16th International Conference on Information Systems for Crisis Response and Management (ISCRAM), 2019, Valencia, Spain.

2. (**Best Paper Runner-up Award**) Firoj Alam, Muhammad Imran, Ferda Ofli. CrisisDPS: Crisis Data Processing Services. In Proceedings of the 16th International Conference on Information Systems for Crisis Response and Management (ISCRAM), 2019, Valencia, Spain.
3. Starr Roxanne Hiltz, Amanda Lee Hughes, Muhammad Imran, Linda Plotnick, Robert Power, and Murray Turoff. Requirements for Software to Support the use of Social Media in Emergency Management: A Delphi Study. In Proceedings of the 16th International Conference on Information Systems for Crisis Response and Management (ISCRAM), 2019, Valencia, Spain.
4. Humaira Waqas, Muhammad Imran. #CampFireMissing: An Analysis of Tweets About Missing and Found People from California Wildfires. In Proceedings of the 16th International Conference on Information Systems for Crisis Response and Management (ISCRAM), 2019, Valencia, Spain.
5. Firoj Alam, Shafiq Joty, Muhammad Imran. Domain Adaptation with Adversarial Training and Graph Embeddings. Accepted for publication at the 56th Annual Meeting of the Association for Computational Linguistics (ACL), 2018, Melbourne, Australia.
6. Koustav Rudra, Niloy Ganguly, Pawan Goyal, Prasenjit Mitra, Muhammad Imran. Identifying Sub-events and Summarizing Information during Disasters. Accepted for publication at the 41st International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR), 2018, Michigan, USA.
7. Himanshu Zade, Kushal Shah, Vaibhavi Rangarajann, Priyanka Kshirsagar, Muhammad Imran, Kate Starbird: From Situational Awareness to Actionability: Towards Improving the Utility of Social Media Data for Crisis Response. In proceedings of the 21st ACM Conference on Computer-Supported Cooperative Work and Social Computing (CSCW), 2018, New York, USA.
8. Muhammad Imran, Carlos Castillo, Fernando Diaz, Sarah Vieweg. Processing Social Media Messages in Mass Emergency: Survey Summary. Accepted for publication in the Web Conference (WWW), April 2018, Lyon, France.
9. Firoj Alam, Shafiq Joty, Muhammad Imran. Graph Based Semi-supervised Learning with Convolutional Neural Networks to Classify Crisis Related Tweets. Accepted for publication at the International AAAI Conference on Web and Social Media (ICWSM), 2018, Stanford, California, USA.
10. Firoj Alam, Ferda Ofli and Muhammad Imran. CrisisMMD: Multimodal Twitter Datasets from Seven Natural Disasters. Accepted for publication at the International AAAI Conference on Web and Social Media (ICWSM), 2018, Stanford, California, USA.
11. Hemant Purohit, Carlos Castillo, Muhammad Imran and Rahul Pandey: Social-EOC: Serviceability Model to Rank Social Media Requests for Emergency Operation Centers. In proceedings of the IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM), Barcelona, August 2018.
12. Hemant Purohit, Carlos Castillo, Muhammad Imran and Rahul Pandey: Ranking of Social Media Alerts with Workload Bounds in Emergency Operation Centers. In the proceedings of ACM/IEEE Web Intelligence, Santiago, Chile, December 2018.
13. Xukun Li, Huaiyu Zhang, Doina Caragea, Muhammad Imran: Localizing and Quantifying Damage in Social Media Images.In proceedings of the IEEE/ACM

International Conference on Advances in Social Networks Analysis and Mining (ASONAM), Barcelona, August 2018.

14. Firoj Alam, Muhammad Imran, Ferda Ofli. Image4Act: Online Social Media Image Processing for Disaster Response. In Proceedings of the IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM), 2017, Sydney, Australia.
15. Dat Tien Nguyen, Ferda Ofli, Muhammad Imran, Prasenjit Mitra. Damage Assessment from Social Media Imagery Data During Disasters. In Proceedings of the IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM), 2017, Sydney, Australia.
16. Muhammad Imran, Sanjay Chawla, Carlos Castillo. A Robust Framework for Classifying Evolving Document Streams in an Expert-Machine-Crowd Setting. In Proceedings of the 18th International Conference on Data Mining (ICDM), December 2016, Barcelona, Spain.
17. Dat Tien Nguyen, Kamela Ali Al Mannai, Shafiq Joty, Hassan Sajjad, Muhammad Imran, Prasenjit Mitra. Robust Classification of Crisis-Related Data on Social Networks using Convolutional Neural Networks. In Proceedings of the 11th International AAAI Conference on Web and Social Media (ICWSM). 2017, Montreal, Canada.
18. (**Best Paper Runner-up Award**) Dat Tien Nguyen, Firoj Alam, Ferda Ofli, Muhammad Imran. Automatic Image Filtering on Social Networks Using Deep Learning and Perceptual Hashing During Crises. In Proceedings of the 14th International Conference on Information Systems for Crisis Response And Management (ISCRAM). 2017 Albi, France.
19. Muhammad Imran, Patrick Meier, Carlos Castillo, Andre Lesa, and Manuel Garcia Herranz: Enabling Digital Health by Automatic Classification of Short Messages. *In Proceedings of the 6th ACM International Conference on Digital Health (DH)*, 2016, Montreal, Canada.
20. (**Best Paper Award**) Muhammad Imran, Prasenjit Mitra, and Jaideep Srivastava: Cross-Language Domain Adaptation for Classifying Crisis-Related Short Messages. *In the 13th International Conference on Information Systems for Crisis Response and Management (ISCRAM)*, 2016, Rio de Janeiro, Brazil.
21. Koustav Rudra, Siddhartha Banerjee, Niloy Ganguly, Pawan Goyal, Muhammad Imran and Prasenjit Mitra. Summarizing Situational Tweets in Crisis Scenario. *Accepted for publication at the 27th ACM Conference on Hypertext and Social Media (HT)*, 2016, Halifax, Canada.
22. Muhammad Imran, Prasenjit Mitra, Carlos Castillo: Twitter as a Lifeline: Human-annotated Twitter Corpora for NLP of Crisis-related Messages. In Proceedings of the 10th Language Resources and Evaluation Conference (LREC), 2016, Slovenia
23. Muhammad Imran, Carlos Castillo. Towards a Data-driven Approach to Identify Crisis-Related Topics in Social Media Streams. *Social Web for Disaster Management (SWDM'15)*, 2015, Florence, Italy.
24. 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 (ISCRAM)*, 2014. Pennsylvania, USA.

25. Muhammad Imran, Carlos Castillo, Ji Lucas, Patrick Meier, and Sarah Vieweg. AIDR: Artificial Intelligence for Disaster Response. *In Proc. of the 23th International Conference on World Wide Web (WWW) Companion*, 2014, Seoul, Korea.
26. Muhammad Imran and Carlos Castillo. Volunteer-powered Automatic Classification 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.
27. Sarah Vieweg, Carlos Castillo and Muhammad Imran. Integrating Social Media Communications into the Rapid Assessment of Sudden Onset Disasters. *In Proc. of the 6th International Conference on Social Informatics (SocInfo)*, 2014.
28. (**Best Paper Award**) Muhammad Imran, Shady Elbassuoni, Carlos Castillo, Fernando Diaz and Patrick Meier. Extracting Information Nuggets from Disaster-Related Messages in Social Media. *In Proc. of the 10th International Conference on Information Systems for Crisis Response and Management (ISCRAM)*, May 2013, Baden-Baden, Germany.
29. Muhammad Imran, Shady Elbassuoni, Carlos Castillo, Fernando Diaz and Patrick Meier. Practical Extraction of Disaster-Relevant Information from Social Media. *Social Web for Disaster Management (SWDM'13)*, 2013, Rio de Janeiro, Brazil.
30. Muhammad Moeen Uddin, Muhammad Imran, and Hassan Sajjad. Understanding Types of Users on Twitter. *SocialCom Standford Conference 2014*, May 2014, CA, USA.
31. Soudip Roy Chowdhury, Muhammad Imran, Muhammad Rizwan Asghar, Sihem Amer-Yahia and Carlos Castillo. Tweet4act: Using Incident-Specific Profiles for Classifying Crisis-Related Messages. *10th International Conference on Information Systems for Crisis Response and Management (ISCRAM)*, May 2013, Baden-Baden, Germany.
32. 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.
33. 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. *In Proc. of the International Conference on Web Engineering (ICWE)*, July 2012, Berlin, Germany.
34. Muhammad Imran, Felix Kling, Stefano Soi, Florian Daniel, Fabio Casati and Maurizio Marchese. ResEval Mash: A Mashup Tool for Advanced Research Evaluation. *In Proc. of the 21th International Conference on World Wide Web (WWW) Companion*, 2012, France, Lyon.
35. Muhammad Imran, Florian Daniel, Fabio Casati, Maurizio Marchese. ResEval Mash: A Mashup Tool that Speaks the Language of the User. *In Proc. of the ACM Conference on Human Factors in Computing Systems (CHI)*, 2012, Austin, USA.

RESEARCH AND TECHNICAL EXPERIENCE

Research Scientist December 2014 – Present
Qatar Computing Research Institute, Doha, Qatar
Responsibilities: I lead the Crisis Computing team in the Social Computing group at Qatar Computing Research Institute. We focus on building computational models and innovative technologies to process high-volume social media

textual and imagery data during time-critical events such as natural disasters. We research and develop novel approaches to combine human and machine intelligence to solve non-trivial problems. Currently, interested in developing innovative solutions and technologies to help stakeholders (e.g., UN OCHA, UNICEF) gain situational awareness and actionable information from social media during time-critical and emergency events.

Post-doctoral Researcher April 2013 – December 2014
Qatar Computing Research Institute, Doha, Qatar
Responsibilities: Conducted research and developed data filtering, classification, and extraction techniques to use social media platforms such as Twitter to solve problems in the humanitarian domain. I led the research and engineering efforts of QCRI's flagship project "Artificial Intelligence for Digital Response" (AIDR). AIDR aims to provide useful information to humanitarian organization at the onset of a disaster situation. AIDR uses social media data to filter, classify, and extract information critical for humanitarian aid.

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 the real-time analysis of social media platforms such as Twitter, to predict life span of NEWS articles. The 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 the classification and extraction of useful information using machine learning techniques to enhance situational awareness of humanitarian organizations.

PhD Researcher November 2009 – March 2013
University of Trento, Trento, Italy
Responsibilities: My PhD focused on the topic of End-user development. Specifically, the aim was to provide a domain-specific high-level language to non-technical end-users to enable them develop ad-hoc applications to fulfill their daily business requirements. I proposed the concept of Domain-Specific Mashups to utilize Web 2.0 technologies to empower and enable non-programmers, non-technical users to develop situational applications to perform complex data aggregation, processing and analysis tasks. This video[22] highlights some of the important features of a proof-of-concept system I developed and also demonstrates the development of complex task that needs data retrieval, filtering, and analyses.

Database Administrator/Developer July 2007 – August 2008
National University of Science & Technology (NUST), Islamabad, Pakistan
Responsibilities: I was responsible of designing, implementing, installing software solutions. Furthermore, I was responsible to perform administration, monitoring, and maintenance of Oracle database systems including performance tuning, query execution, tuning execution plans, etc.

PROFESSIONAL ACTIVITIES

-Keynotes:

- International Conference on Information Systems for Crisis Response and Management (ISCRAM), 2016, Rio de Janeiro, Brazil.
- Exploitation of Social Media for Emergency Relief and Preparedness (SMERP) workshop, co-located with European Conference on Information Retrieval

[22] https://youtu.be/1F99T3ZPz-4?t=302

(ECIR), 2017, Aberdeen, United Kingdom.

- International Conference on Innovative Computing (ICIC), 2016, Lahore, Pakistan.

- **Invited talks:**
  - IBM Research Lab Zurich, "AI and Social Media for Social Good", 2019, Zurich, Switzerland.
  - University of Zurich, "AI and Social Media for Social Good", 2019, Zurich, Switzerland.
  - University of Chile, "Using Social Media and AI for Disaster Response and Associated Challenges", 2018, Santiago, Chile.
  - Doha Forum, "Artificial Intelligence for Mining Attacks on Education Data on Social Media", 2018, Doha, Qatar.
  - European Commission Joint Research Center (JRC),"Artificial Intelligence for Disaster Response, 2016, Ispra, Italy.
  - UNESCO: United Nations Educational, Scientific and Cultural Organization, "Artificial Intelligence for Disaster Response", 2015, Geneva, Switzerland.
  - Impacts of Extreme Natural Events: Science and Technology for Mitigation (IRENE) round table, "Enabling Rapid Disaster Response Using AI and Social Media", 2017, Colombo, Sri Lanka.
  - Higher Education Commission (HEC) Pakistan Data Science workshop, "Real-time Processing of Social Media Content for Social Good", 2017, Islamabad, Pakistan.
  - Machine Learning and Data Analytics Symposium (MLDAS), "Artificial Intelligence for Disaster Response", 2014, Doha, Qatar.
  - Global Entrepreneurship Week at Qatar Science and Technology Park, "Introduction to Machine Learning: An Application to Disaster Response", 2015, Doha, Qatar.
  - SeCO Workshop on Search Computing, 2010, Como, Milan, Italy.

- **Editor of special issues:**
  - Information Processing & Management journal (IP&M) Elsevier: Special Issue on Using AI and Social Media for Disaster Response and Management, 2019.
  - Behaviour & Information Technology journal (Taylor Francis): Special Issue on Social Media in Conflicts and Crises, 2018.
  - International Journal of Human-Computer Interaction (IJHCI): Special Issue on Social Media in Crisis Management, 2017.
  - Journal of Information System Frontiers: Special Issue on Exploitation of Social Media for Emergency Relief and Preparedness, 2017.

- **Track Co-chair:**
  - International Conference on Information Systems for Crisis Response and Management (ISCRAM), 2015, 2016, 2017, 2018, 2019.

- **Program committee member:**
  - International ACM Conference on Research and Development in Information Retrieval (SIGIR), 2018, 2019.
  - International AAAI Conference on Web And Social Media (ICWSM-2016, 2017, 2018, 2019)
  - International Conference on Digital Health (DH 2015, 2016, 2017, 2018)

- International Workshop on Social Web for Disaster Management (SWDM 2015, 2016)
- International Conference on Information Systems for Crisis Response and Management-Mediterranean (ISCRAM-Med 2014, 2015, 2016, 2017, 2018, 2019)
- ICWSM 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:**
  - ACM Conference on Computer-Supported Cooperative Work and Social Computing (CSCW 2017)
  - ACM Transactions on Information Systems (2015)
  - Information Systems Frontiers Journal (2016)
  - 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)

- **Professional member:**
  - Association for Computing Machinery (ACM) professional member since 2012
  - ISCRAM community professional member since 2012
  - IEEE member since 2017

TEACHING EXPERIENCE

- Service-Oriented Architecture and Applications – course held by Prof. Maurizio Marchese at the University of Trento, 2009 – 2010
- Laboratory for Service Design and Engineering – course held by Prof. Maurizio Marchese at the University of Trento, 2010 – 2012

CERTIFICATIONS

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

TECHNICAL SKILLS

- **Programming languages:**
  - JAVA— SE, EE, EJBs (expert level)
  - Web Services Restful, SOAP (expert level)
  - Python (advanced level)
  - R (beginner level)
  - Microsoft .NET Framework using C#, ASP.NET and ADO.Net (advanced level)

- **Databases**:
  - Postgres
  - Redis (expert level)
  - Oracle 9i, 10g, 11g (expert level)

- MySQL, MS-SQL Server (advanced level)

- **Misc. expertise**:
  - Good hands on knowledge of various machine learning and data mining libraries: Weka, Scikit-learn, DeepLearning4J
  - Good knowledge of OOP (Object Oriented Programming)
  - Experience designing and/or developing solutions using a Service Oriented Architecture (SOA)
  - Sound knowledge of 3-tier, N-tier architecture and distributed applications
  - Experience using tools such as Net Beans, Eclipse, Visual Studio.Net
  - Experience using technologies such as Maven, Base Camp, Pivotal Tracker, GIT

REFERENCES References available upon request.