Nabeel Abdur Rehman

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Research Interests
My research focuses on technology for developing countries, data science and computational epidemiology.

Skills: Matlab, R, C, C++, PHP, Python, HTML, JavaScript, SQL, Google Datastore NDB, Android, ArcGIS, Google Maps API, Microcontrollers, Arduino Board, 3d Studio Max, Adobe Photoshop, Adobe After Effects

EDUCATION

2015-current **New York University, Computer Science and Engineering, New York, USA**
PhD student in Computer Science
Advisor: Rumi Chunara

2009-2013 **Lahore University of Management Sciences (LUMS), Lahore, Pakistan**
B.S. in Electrical Engineering
Final Year Project: Early Epidemic Detection and Disease Surveillance

RESEARCH EXPERIENCE

- **Graduate Research Assistant, New York University *(September 2015 - current)***
- **Research Assistant, NYU Abu Dhabi *(June 2015 - August 2015)***
- **Research Associate, ITU (*2013 - 2015*), Research Assistant, LUMS (*2011 - 2013*)**
  Advisors: Umar Saif (Information Technology University(ITU)), Lakshminarayanan Subramanian (New York University),

  Fine-grained Dengue surveillance with citizen-driven data (*http://tracking.punjab.gov.pk/prediction_model*)
  with Lakshminarayanan Subramanian & Umar Saif
  A disease forecasting system which uses call volume data from a simple health hotline setup, to provides highly accurate measures of dengue incidences at a fine-grained sub city level, two to three weeks ahead of time. We prove that a simple health hotline setup can drastically improve the current disease surveillance methods.

  Interventions in controlling Dengue Outbreaks in Punjab, Pakistan
  with Lakshminarayanan Subramanian & Umar Saif
  Yearly case studies of the recent dengue outbreaks in Pakistan. We analyzed the spatial and temporal effects of dengue containment activities on reducing number of dengue patients in a locality. Moreover, we investigated the efficacy of using android phones to geo-tag containment activities.

  Dengue early epidemic detection system for the Punjab Government (*http://tracking.punjab.gov.pk/public/scan_map*)
  with Umar Saif
  A spatio-temporal early epidemic detection system developed for the Punjab government. The system uses Aedes aegypti larvae sightings reports and weather data to identify potential dengue spreading hotspots. The system is currently being used to target containment activities and preventive measures at targeted locations to curb dengue outbreaks at earlier stage.

  Identifying Topics in Urdu short messages using Connecting Words
  with Lakshminarayanan Subramanian & Umar Saif
  A novel supervised learning technique to identify topics in Urdu short messages (SMS) written in Roman script. Topic extraction from such dataset is a challenging task as there is no grammatical structure in text messages.

  Characterizing disease spread and severity from newspaper articles
  with Lakshminarayanan Subramanian & Umar Saif
  A web-based tool, which characterizes the spread and severity of dengue by analyzing local news articles in Pakistan. It detects false reporting by monitoring multiple news sources and identifies severity of the spread based on past data.

  Flubreaks (http://newt.itu.edu.pk/flubreaks)
  with Umar Saif
  Evaluating and deploying a wide range of statistical outbreak detection algorithms while considering seasonality of disease like Influenza. This was developed on top of internet search query data coming from Google Flu Trends.

TEACHING EXPERIENCE

- *Fall 2013* Teaching Assistant of Graduate level course “Design Lab 2” at ITU
- *Fall 2013* Teaching Assistant of Undergraduate level course “Introduction to Artificial Intelligence” at LUMS
- *2009-2013* Tutor of A Levels and O Levels Mathematics and Physics

PUBLICATIONS

- T Ahmad, **N Abdur Rehman**, F Pervaiz, S Kalyanaraman, MBS Ahmad, S Chakraborty, U Saif, L Subramanian, "Characterizing Dengue Spread and Severity using Internet Media Sources", ACM DEV (2013)
- F Pervaiz, T Ahmad, **N Abdur Rehman**, U Saif, L Subramanian, "Punjab-IDSS: Dengue Surveillance, Early Detection and Containment 2012", mHealth Summit (2012)
- F Pervaiz, M Pervaiz, **N Abdur Rehman**, U Saif, "FluBreaks: Early Epidemic Detection from Google Flu Trends", Journal of Medical Internet Research (2012)

AWARDS

- *2015-2016* Dean's Fellowship, New York University

MANAGEMENT SKILLS

- *2013* Programme Committee member of first Pakistan-ICTD Workshop held in Lahore on 15-16th Jan
- *2011-2012* Executive Council member in LUMS Society for Promotion and Development of Engineering and Sciences
- *2009-2010* Organizer and Media Director of events "LUMS PsiFi '10", "LUMS Olympiad '10", "LUMS PsiFi '11"

COMMUNICATION SKILLS

- Organized recreational activities for children at Children Hospital and SOS Village Lahore
- Successfully negotiated with Media Channels for event LUMS Psifi' 11 and LUMS Olympiad '10
- Proficient in English, Urdu and Punjabi