DIGITAL HUMANITARIANS: How Big Data is Changing the Face of Humanitarian Response

Description

Tweet

By Patrick, Meier, Francis & Taylor Press, January 15, 2015 See: http://digital-humanitarians.com/

â??The overflow of information generated during disasters can be as paralyzing to humanitarian response as the lack of information. This flash flood of information is often referred to as Big Data, or Big Crisis Data. Making sense of Big Crisis Data is proving to be an impossible challenge for traditional humanitarian organizations, which is precisely why theyâ??re turning to Digital Humanitarians.â?•

The Rise of the Digital Humanitarians

Charts the sudden rise of Digital Humanitarians during the 2010 Haiti Earthquake. This was the first time that thousands of digital volunteers mobilized online to support search and rescue efforts and human relief operations on the ground. These digital humanitarians used crowdsourcing to make sense of social media, text messages and satellite imagery, creating unique digital crisis maps that reflected the situation on the ground in near real-time.

The Rise of Big (Crisis) Data

Introduces the notion of Big Data and addresses concerns around the use of Big (Crisis) Data for humanitarian response. These include data bias, discrimination, false data and threats to privacy. The chapter draws on several stories to explain why the two main concerns for the future of digital humanitarian response are: Big (Size) Data and Big (False) Data. As such, the first two chapters of the book set the stage for the main stories that follow.

Crowd Computing Social Media

Begins with the digital humanitarian response to massive forest fires in Russia and traces the evolution of digital humanitarians through subsequent digital deployments in Libya, the Philippines and beyond. This evolution sees a shift towards the use of a smarter crowdsourcing approachâ??called crowd computingâ??to make sense of Big Crisis Data. The chapter describes the launch of the Digital Humanitarian Network (DHN), co-founded by the United Nations.

Crowd Computing Satellite & Aerial Imagery

Considers the application of crowd computing to imagery captured by orbiting satellites and flying drones (or UAVs). The chapter begins with the most massive digital crowdsearching effort ever carried out and contrasts this to a related UN project in Somalia. The chapter then describes an exciting project driven by a new generation of satellites and digital humanitarians. The chapter also highlights the rise of humanitarian UAVs and explains the implications for the future of disaster response.

Artificial Intelligence for Disaster Response

Returns to social media as a source of Big Data and explains why crowd computing alone may only be part of the solution. The chapter introduces concepts from advanced computing and artificial intelligenceâ??such as data mining and machine learningâ??to explain how these are already being used to make sense of Big Data during disasters. The chapter highlights how digital humanitarians have been using these new techniques in response to the crisis in Syria. The chapter also describes how artificial intelligence is also being used to make sense of vast volumes of text messages (SMS).

Artificial Intelligence in the Sky

Extends the use of artificial intelligence and machine learning to the world of satellite and aerial imagery. The chapter draws on examples from Haiti and the Philippines to describe the very latest breakthroughs in automated imagery analysis. The chapter then highlights how these automated techniques are also being applied to rapidly analyze aerial imagery of disaster zones captured by UAVs.

Verifying Big Crisis Data

Begins to tackle the challenge of Big (False) Dataâ??that is, misinformation and disinformation generated on social media during disasters. The chapter opens with the verification challenges that digital humanitarians faced in Libya and Russia. Concrete strategies for the verification of social media are presented by drawing on the expertise of multiple digital detectives across the world. The chapter then considers the use of crowdsourcing to verify social media during disasters, highlighting a novel and promising new project inspired by the search for red balloons.

Verifying Big Data with Artificial Intelligence

Highlights how artificial intelligence and machine learning can be used to verify user-generated content posted on social media during disasters. Drawing on the latest scientific research, the chapter makes a case for combining traditional investigative journalism strategies with new technologies powered by artificial intelligence. The chapter introduce a new project that enables anyone to automatically compute the credibility of tweets.

Dictators versus Digital Humanitarians

Considers a different take on digital humanitarians by highlighting how their efforts turn to digital activism in countries under repressive rule. The chapter provides an intimate view into the activities of digital humanitarians in the run-up to the Egyptian Revolution. The chapter then highlights how digital activists from China and Iran are drawing on their experience in civil resistance when responding disasters. These experiences suggest that crowdsourced humanitarian response improves civil resistance and vice versa.

Next-Generation Digital Humanitarians

Distills some of the lessons that digital humanitarians can learn from digital activists in repressive countries. These lessons and best practices highlight the importance of developing innovative policies and not just innovative technologies. The importance of forward-thinking policy-solutions pervades the

chapter; from the use of cell phone data to spam filters and massive multiplayer online games. Technology alone wonâ??t solve the myriad of challenges that digital humanitarians face. Enlightened leadership and forward-thinking policy-making are equallyâ??if not more important thanâ?? breakthroughs in humanitarian technology. The chapter concludes by highlighting key trends that are likely to define the next generation of digital humanitarians.

Rick Davies comment: Re the chapter on Artificial Intelligence for Disaster Response and the references therein to data mining and machine learning, readers will find plenty of references to the usefulness of Decision Tree algorithms on my **Rick on the Road blog**

And as a keen walker and cyclist I can recommend readers check out the crowdsourced OpenStreetMap project, which makes available good quality detailed and frequently updated maps of many parts of the world. I have contributed in a small way by correcting and adding to street names in central Mogadishu, based on my own archival sources. I was also impressed to see that â??roadâ?• routes in northern Somalia, where I once lived, are much more detailed than any other source that I have come across.

Category

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