Andrew Ilyas

Microfilters: Harnessing Twitter For Disaster Management

Challenge: Innovation
Category: Intermediate
Region: Waterloo-Wellington
City: Waterloo, ON
School: Waterloo Collegiate Institute

Abstract: MicroFilters is a novel system harnessing the power of Twitter for disaster response using automatic image extraction and machine learning. Previously, tweets were manually filtered for images or automatically classified using text. MicroFilters automates the filtering process using a novel image-based approach accelerating disaster response and producing richer data than text alone. MicroFilters was used by the UN during Typhoon Haiyan and the Oklahoma Tornado.

Biography

My name is Andrew Ilyas, and I go to WCI, Waterloo, Ontario. I enjoy math, programming, soccer, table tennis, and piano. I attended the 2012 CWSF in PEI. My project, MicroFilters, is a system that automatically extracts and classifies images linked to from Twitter, finding relevant images and getting them to rescue teams to accelerate disaster response. I got my inspiration while discussing disaster management with Dr. Patrick Meier, who mentioned the importance of images for concisely identifying the magnitude of damage in a disaster. MicroFilters started as an image extractor, crawling links referenced in tweets during a disaster. However, my passion for machine learning led me to create a system that not only extracts images, but also accelerates the rescue process by replacing the manual lengthy classification tasks. Currently, MicroFilters is publicly available online. It was used by the UN during the Philippines' Typhoon, for which MicroFilters was featured on the local news. In the future, I hope to use more machine learning techniques in order to boost MicroFilters' efficiency and responsiveness. If I were to say one thing to future participants, it would be to apply your skills and your passions to your project, whatever it may be.

Awards

Awards	Value
Excellence Award - Intermediate - Silver Medal Sponsor: Youth Science Canada	$300
Western University Scholarship Silver Medallist - $2000 Entrance Scholarship Sponsor: Western University	$2 000
Total	$2 300