**Forecasting People's Needs in Disasters from Social Media**

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**Abstract:**

During disasters, social media can serve as a new communication channel for expressing needs, offering help, and coordinating rescue activities. Social media such as Twitter allow users to update relevant information in real-time which is especially useful in the crisis. With conditions rapidly changing in a disaster it is crucial to have accurate information readily available for all parties involved. Relying on social media allows users affected by the disaster who are familiar with the environment to express their needs. These users experience the disaster firsthand and are therefore in tune with what is happening at the site. This personal information allows others to better facilitate their exact needs. This paper presents a sequence to sequence based framework for forecasting people's need during disasters using social media data and weather data. It consists of two Long Short-Term Memory (LSTM) models: one LSTM model encodes input sequences of weather information and the other LSTM model plays as a conditional decoder that decodes the encoded vector and forecasts the needs. We conducted an analysis using data collected during the recent Hurricane Harvey and compared it with a statistical language model n-gram and an LSTM generative model. Results show that the proposed sequence to sequence method can forecast people's needs better than the generative model and outperform the n-gram model. This approach has a high potential to enhance disaster management, e.g., for evacuation planning and commodity flow management.

**Biography:**

Long Nguyen is Ph.D. student working under the supervision of Dr. Fang Jin. He started to pursue his Ph.D. degree in the department of Computer Science in 2017 at Texas Tech University. His current research falls in the area of machine learning, data analytics, and its applications in real world.

