

CS 416 Narrative Visualization

Introduction

Agricultural injuries remain a major concern in North America, with an incident rate of 19.5 deaths per 100,000 workers in the United States. Numerous research efforts have sought to compile and analyze records of agricultural-related injuries and fatalities at a national level, utilizing resources, ranging from newspaper clippings and hospital records to Emergency Medical System (EMS) data, death certifications, surveys, and other multiple sources.

This narrative visualization illustrated the injury surveillance data collected from a systematic review, adopting the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) methodology. It aims to consolidate disparate findings, offering a holistic examination of agricultural injuries across North America.

Messaging

The primary message this narrative visualization attempts to communicate is the distribution of agricultural injuries in North America. It includes three pages: Overview, Fatality, and Non-Fatality. The Overview page shows the distribution of the all types of agricultural injuries (both fatal and non-fatal). The Fatality page is focusing on the death caused by agricultural activities. In this case, the data mostly came from death certificates and multiple sources. The Non-Fatality figure targets on the non-life-threatening injuries. For each page the sources of the injury data include six different levels: death certificates, emergency medical services (EMS), hospital records, newspaper clippings, surveys, and multiple sources. The visualization provides an intuitive representation of the injury number in each category of data source, enabling a comparison that enhances the viewer's understanding of the data distribution.

Narrative Structure

The visualization follows the interactive slide show structure. It presents three main slides or scenes corresponding to the Overview, Fatality, and Non-Fatality categories, each one depicting the distribution of data points within the category. The viewer can navigate between these scenes by clicking on the buttons corresponding to the categories. This interactive structure allows the viewer to compare data across different categories in a more focused manner while also providing an opportunity for exploration within each scene.

Visual Structure

The visual structure is consistent across all scenes. Each scene utilizes a bar chart to represent the number of injuries. The bar chart provides a clear, intuitive way to visualize and compare the number of injuries in different categories. The color coding of the bars helps the viewer focus on specific data points in each scene, and aids the transition between scenes by maintaining a consistent color code for the same data points across different categories.

Scenes

The scenes in this narrative visualization correspond to the three categories: "Overview", "Fatality", and "Non-Fatality". They are ordered based on the broad to specific principle, beginning with an overview that gives the general picture, followed by two specific categories. This order helps the viewer gain an initial general understanding before moving into more specific insights.

Annotations

The annotations follow a simple, direct template that displays the exact number of injuries represented by the bar. These annotations support the messaging by providing precise quantitative information to accompany the visual depiction. The annotations change within a single scene as the viewer hovers over different bars, allowing the viewer to focus on individual data points and understand their specific value.

Parameters

The parameters of this narrative visualization include the category (either Overview, Fatality, or Non-Fatality) and the specific data points within each category. The state of the visualization changes as the viewer switches between different categories. The parameters are used to define the state and each scene, determining which data points are displayed and their respective quantities.

Triggers

The triggers in this narrative visualization are the buttons corresponding to the three categories. When the viewer clicks on a button, it triggers a change of state in the visualization, displaying the data corresponding to the chosen category. For example, if slide is “Non-Fatal”, it will show distributions of non-fatal farm injuries among different data sources. The buttons, with their clear labels, also provide a straightforward way for the viewer to understand how to navigate the visualization.