

## SPECIAL SNAPSHOT SECTION

Making a Case for Data Visualization at the Undergraduate Level

Regardless of major, all students will visualize some kind of data during their academic career. Data visualization is about more than creating pretty pictures. Data visualization is the *process* of transforming raw data into insights. Employers are looking for persons with data visualization skills and the ability to apply those skills to data specific problems. CGT 270 Data Visualization is a course for all disciplines and interests where transferable data visualization skills are learned by applying the data visualization process to real-world, hands-on exercises. Students choose their own research topics, develop their own research questions, and apply data visualization skills learned in the class to answer those questions. The following Snapshots provide a wide array of applications of data visualization by students from the spring 2018 CGT 270 Data Visualization course, Office of Undergraduate Research (OUR) Scholars recruited from CGT 270, and students from the Sophomore Statistical Learning Community (SSLC).

The first three Snapshots describe student-selected research projects from the Spring CGT 270 course. Bin Han's interdisciplinary project analyzes geographic and demographic mental health insurance claims in Indiana. Food deserts and their effect on the rate of obesity is explored by Edith Mauro. Danielle Quihan Zhang applies her data visualization skills to environmental causes on automobile accidents.

The next two Snapshots are from OUR Scholars, Jackalyn Dodson and Ian Williams, who use data visualization to

examine two current and relevant topics. Drug interactions and side effects of taking multiple prescription medications are visually represented by Jackalyn Dodson. Ian Williams uses visual analytics to identify contributing factors to opioid abuse in Indiana. Jackalyn and Ian are graduates of the Fall 2017 CGT 270 Data Visualization class who expressed interest in data visualization research opportunities.

The last two Snapshots are from students participating in the SSLC who, after two semesters of research in the Byrd Data Visualization Laboratory, are leading their respective data visualization research projects. The first, by Dylan Martin, explores big data through HoloLens technology, integrating data and technology in a hybrid virtual reality environment. The second, by Lauren Washington, uses data visualization to create a framework for visualizing symptom clusters of lupus, an autoimmune disease that is difficult to detect and diagnose. The data visualization process fosters an environment for curiosity and creativity, and allows for the examination of how best to represent data, while building critical thinking and higher-order thinking skills. After reading these Snapshots you will understand why the purpose of visualization is not to create a pretty picture, but to gain a better understanding of what the data represents.

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