Data Memes for Personal Visualization

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Data Memes

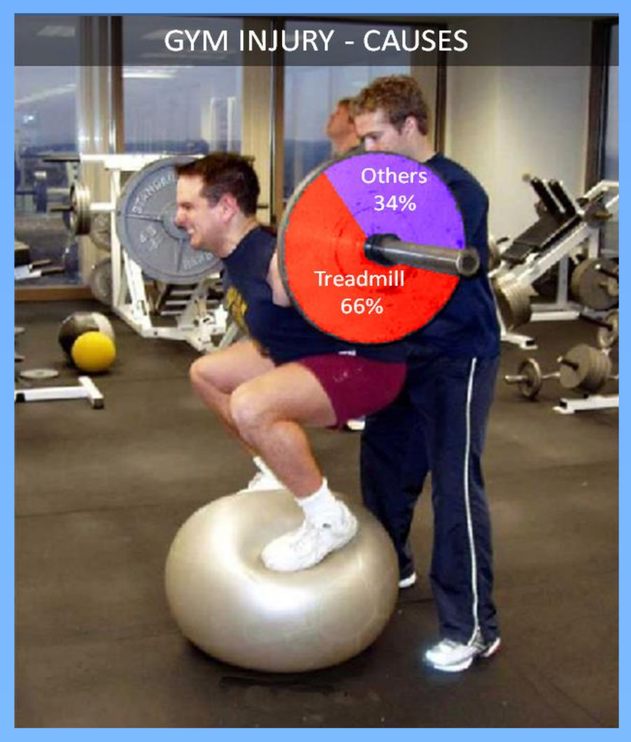
We introduce the concept of Data Memes as artistic visuals of data in which users can merge data visualizations with an image such that the structure of the image supports the user's intended meaning (or interpretation) of the data. Wikipedia defines the notion of Meme "an idea, behavior, or style that spreads from person to person within a culture". A more recent phenomenon is that of Internet Meme. These are images augmented with text in which the creator's choice of image puts forward his/her idea about the message the text conveys. They are often reused with the same core message, and as a result gain viral dissemination. Similarly, our Data Memes are images augmented with related data in which the designer's choice of image puts forward his/her idea about the message the data convey.

Personal Visualization Application

Data Memes can represent very personal views, thus it is natural to employ them in the visualization of personal data. In addition to the data, the image that the user chooses and enhances for the data meme is itself a powerful element of the visualization as it can encode a multitude of information. The image is linked to the topic of the data being displayed, with the choice of image putting forth the designer's point of view about the data. At the same time it is also capable of enhancing memorability and engaging viewers. We foresee that users may use the Data Memes to post their own data on social media or blogs in order to (1) engage viewers to consider the information or (2) put across their own point of view about the data.

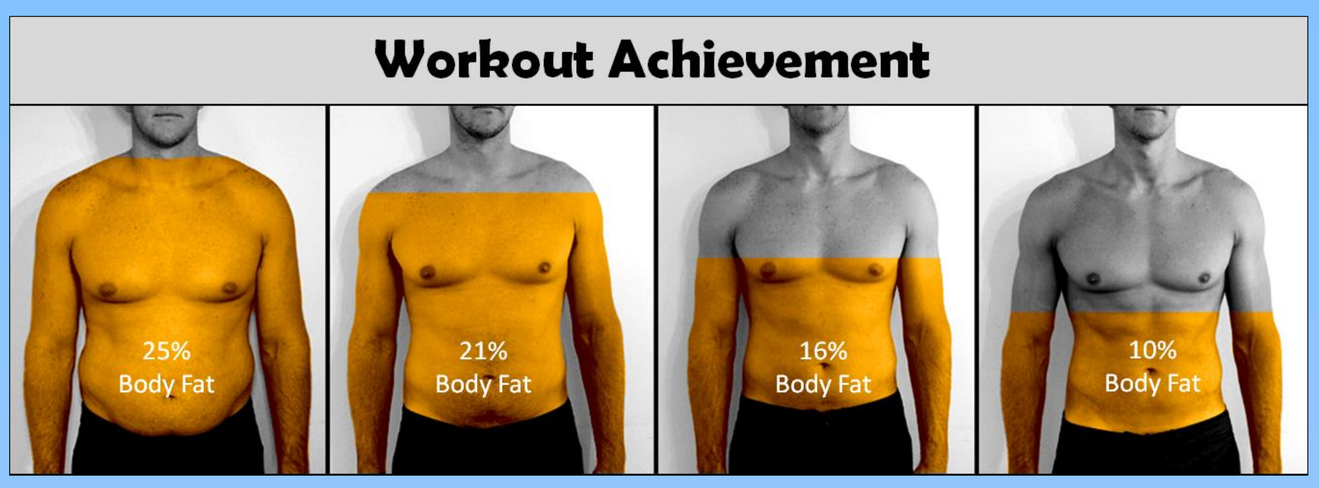
Design Process

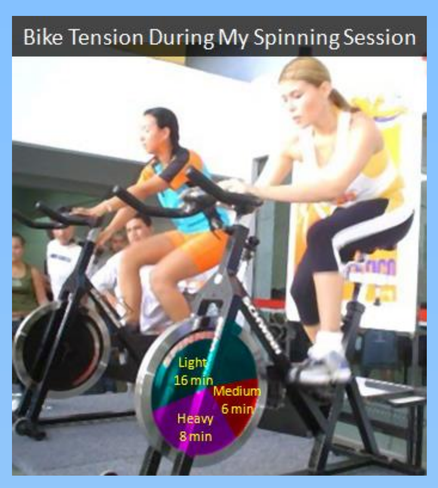
Designing a Data Meme starts off with the user providing a data file and selecting the type of chart (pie, bar, line) he or she wishes to plot. Next, the tool suggests a set of relevant thematic image backdrops retrieved by a web-scale text-based image search engine (e.g., Google Images, Flickr). To form the search query our tool uses the title of the dataset and the attribute labels since these are intuitive descriptors of the data. Alternatively, the user can also call in a picture from his or her private photo collection. The latter would likely be a more popular option for the purpose of personal visualization where users wish to post their own data to social media or blog, utilizing a personal image as a carrier.
Once the user has selected an image from the provided set, he or she is given access to an array of processes to fuse the chart with the image. Then, after the chart has been embedded, the user can customize the visualization further by applying a diverse set of visual effects to the backdrop (filters, transparency etc.) or to the chart (color selection, glow, transparency). This customization gives the visualization an illustrative look and feel, and it also reduces image detail that might interfere with the detail of the chart. This finalizes the result.



Future Work

We believe that the examples we have presented do a good job in explaining the potential of Data Memes as a means to contextualize the data with an image and so provide for a more engaging viewing experience. Future work will run a user study where subjects would create Data Memes with real and even personal datasets using pictures of themselves. We will also test how engaging these visualizations are and if the user's point of view is put across in the Data Meme.





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