Data Visualization

Communicate information clearly and efficiently via information graphics, making complex data understandable.

Keywords: visualization, data, infographics, graphics

An objective of data visualization is to communicate information clearly and efficiently to users via the information graphics selected, such as a table or chart. Effective visualization helps users analyze and interpret the represented data and evidence. It makes complex data more accessible, understandable and usable.

We can produce visualization media in various formats, as is necessary for your needs. Examples include:

- Illustration / figure
- Animation / video
- Interactive / web

The Data Visualization Service consists of expert consultation with you to:

1. Understand your goals at communicating the data in question,
2. Refine the data to allow it to be consumed for visualization, and
3. Identify and implement visualization techniques and tools to output a static and/or interactive visual object.

Examples

Collaborative Networks / Social Graphs

<table>
<thead>
<tr>
<th>Use Case</th>
<th>The Beta Cell Biology Consortium Coordinating Center needed to visualize the research networks that existed within its organization.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data</td>
<td>Relational database provided funding data for all BCBC investigators. Data is queried and transformed to JSON, which is then passed to the Flash object.</td>
</tr>
<tr>
<td>Technology used</td>
<td>Flash/Flare API</td>
</tr>
<tr>
<td>Media Type</td>
<td>Interactive /Web</td>
</tr>
<tr>
<td>Static Image</td>
<td><img src="http://www.betacell.org/research/networks/" alt="Collaborative Networks Image" /></td>
</tr>
</tbody>
</table>

### Interactive Gene Networks

**Use Case**
High-throughput functional genomics experiments (microarray, RNA-Seq, ChIP-Seq) have illuminated millions of gene-gene relationships and interactions. The BCBC has warehoused all of this data, but needed an interactive tool to allow scientists to interactively browse though this data in a localized manner. We constructed a local gene network visualization tool that met the needs of the scientists and bioinformaticians.

**Data**
Millions of records described entities (such as genes) and the relationships between these, including data provenance, type of relationship, directionality and more.

**Technology used:** Flash/Flare API, Javascript, HTML5, PHP, PostgreSQL

### Static Image

![Gene Network Diagram](Pancreatic_bud_formation.png)

**URL**
Pancreatic bud formation: Mnx1, Pdx1, Ptf1a, Nkx6-1, Nkx2-2, Cpa1, Myc, Pbx1, Slc2a2

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### Multi-Resolution Microscopy Image Viewer

**Use Case**
A high-content imaging project (Al Powers, Vanderbilt University) required the development of web tools to allow for the annotation and viewing of large-scale and 3D microscopy imagery.

**Data**
Microscopy data in the form of LSM, AFI and SVS files

**Technology used:** Google Maps API (version 2 and 3), PostgreSQL, PHP, HTML5

**Media Type**
Interactive / Web

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### Microscopy 3D Image Viewer

**Use Case**
A high-content imaging project (Al Powers, Vanderbilt University) required the development of web tools to allow for the annotation and viewing of large-scale and 3D microscopy imagery.

**Data**
Microscopy data in the form of LSM, AFI and SVS files

**Technology used:** HTML5, Javascript

**Media Type**
Interactive / Web
Service Fees

Hourly rates apply.

Estimates to be provided following consultation.