MAGNITUDE

3D Bar Chart
Shows the magnitude across 2 categorical variables

3D Stacked Bar Chart
Shows the magnitude across 2 categorical variables

3D Mesh Plot
Shows the magnitude across 2 categorical or continuous variables

3D Rectangle Chart
Shows the magnitude of 2 numeric variables across a categorical variable

3D Radar Plot
Shows the magnitude of multiple variables

COMPARE

3D Bar Chart
Compares magnitude across 2 categorical variables

3D Rectangle Chart
Compares the magnitude of 2 numeric variables across a categorical variable

CORRELATE

3D Scatter Plot
Shows relationship between 3 continuous numeric variables

3D Bubble Plot
Shows relationship between 4 continuous numeric variables

3D Connected Scatter Plot
Shows relationship between 3 continuous numeric variables and its trend over time

SHAPE

3D Contour Plot
Shows the relationship of functions x=f(y) and z=g(y)

3D Parametric Contour Plot
Shows the relationship of functions x=f(t), y=g(t), and z=k(t) based on a variable t

3D Surface Plot
Shows the shape of the function y=f(x,z)

3D Parametric Surface Plot
Shows the relationship of functions x=f(u,v), y=g(u,v), and z=k(u,v) based on variables u and v

3D Contour Map
Shows the landscape or terrains

Point Cloud
Shows the 3D shape or model of an object

DISTRIBUTION

3D Bar Chart
Shows the distribution across 2 categorical variables (in the form of a 3D histogram)

Waterfall Plot
Shows the distribution across different groups along a continuous variable

CHANGE OVER TIME

3D Time Series
Shows change over time for 2 continuous variables

3D Mesh Plot
Shows change over time for a continuous variable for multiple groups

3D Connected Scatter Plot
Shows relationship between 3 continuous numeric variables and its trend over time

Waterfall Plot
Shows the change over time for a continuous variable for multiple groups

3D Map with Time Bars
Shows spatially-referenced time dependent numeric data

SPATIAL

Prism Map
Shows the magnitude of a variable spatially

3D Map Bar Graph
Shows the magnitude of a variable spatially

3D Map Stacked Bar Graph
Shows the magnitude across 2 categorical or continuous variables

3D Isoline Map
Shows line of constant value for a property on a map

3D Flow Map
Shows the movement on a map

3D Map with Time Bars
Shows spatially-referenced time dependent numeric data

FLOW & RELATIONSHIP

Force Directed Graph
Shows the strength and inter-connectedness of relationships. Can be used to show flow using animation.

3D Flow Map
Shows the movement on a map

PART OF WHOLE

3D Stacked Bar Chart
Shows the magnitude across 2 categorical variables

3D Treemap
Shows hierarchical part-to-whole relationships; also shows the magnitude of a variable using height

HOW TO CHOOSE THE RIGHT CHART*

Based on the user tasks defined on the top, look at the chart type and data type they represent to form an initial idea on which chart to use. This is not an exauhstive list but a starting point in using 3D visualization.

Readability
Readability of the graph is decided on the basis of Cleveland et al.[63] study of graphical perception, occlusion of graphical elements, and novelty of layout. Readability of the visualization is also affected by the task that needs to performed, the design (i.e. the colors and layout) of the visualization, and the dataset to be visualized.

Low ●●●● *High*

* This is based on my personal assessments informed by literature review and my experience in using information visualizations in VR.