



Module #3:

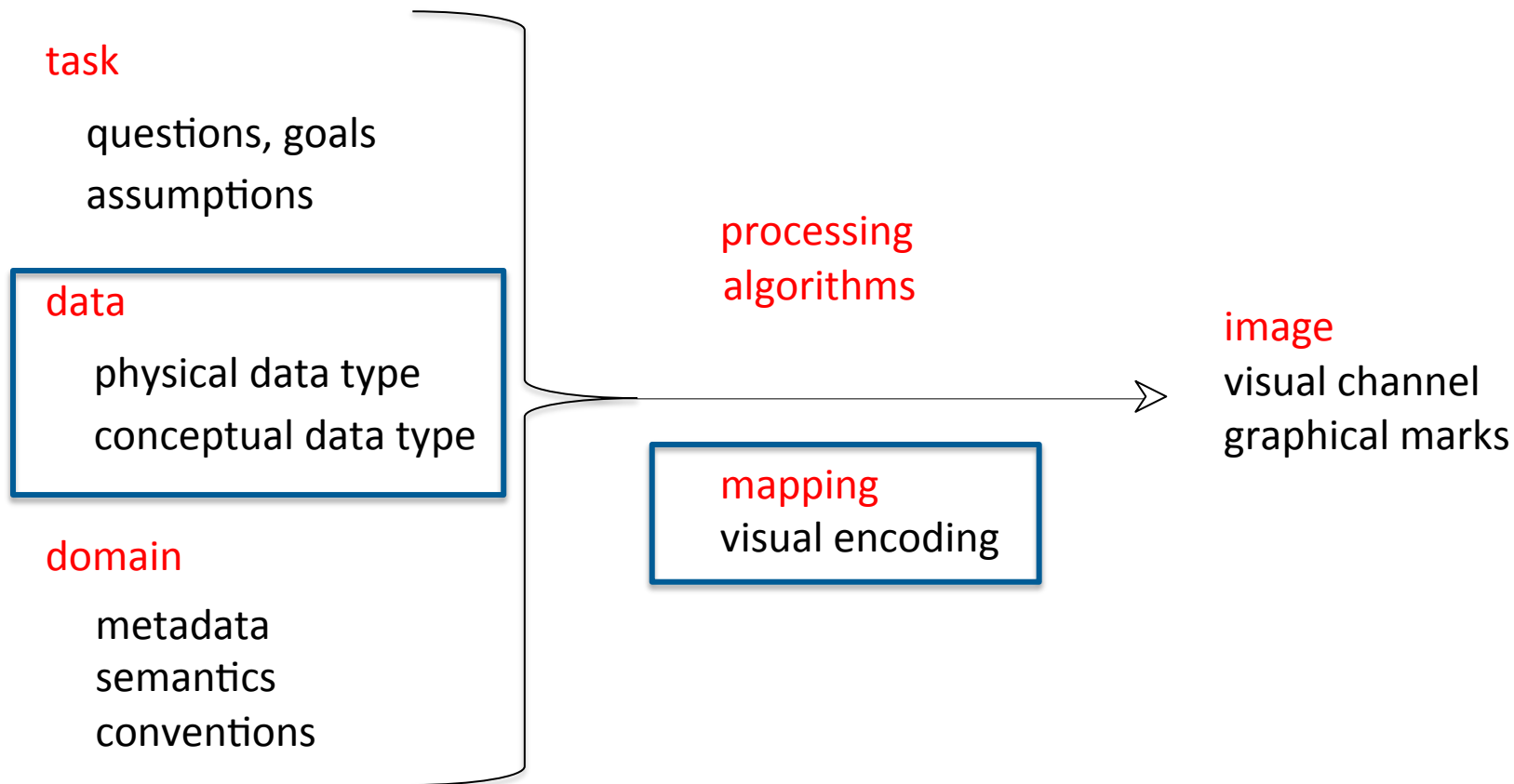
Human Visual Perception



Objectives

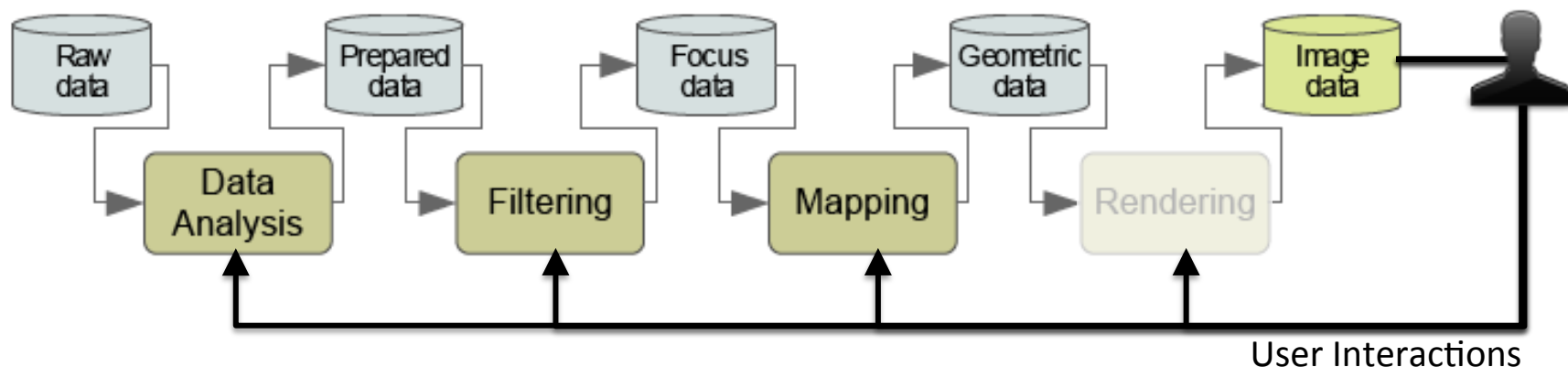
- Have a basic understanding of our visual system and how humans interpret the surrounding environment.
- Explain different ways to encode data within a visualization technique
- Discuss visual variables and grouping laws

Visualization Process



From Data to Graphic

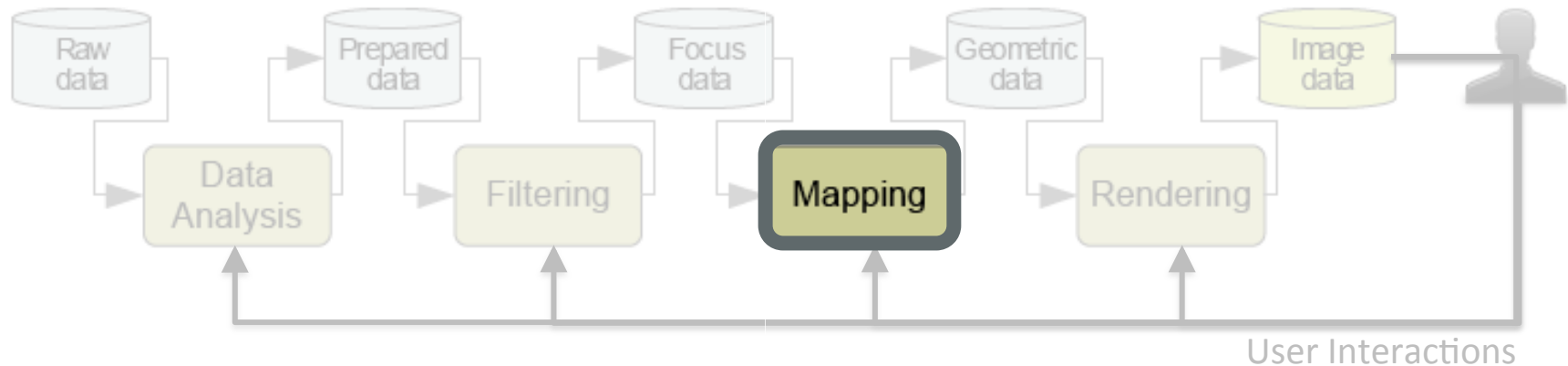
- The Visualization Pipeline



- Rendering is largely “solved”
 - e.g., Canvas, SVG, OpenGL, DirectX, Java 2D

From Data to Graphic

- The Visualization Pipeline



- Once data is prepared and filtered, it must be mapped to a graphic representation
 - A process often called **“Visual Encoding”**

What is Visual Encoding?

- Mapping of data entities, attributes, and relationships to a geometric representation that facilitates visual interpretation.





The Designer's Role

- Your job as a visualization designer
 - Design an interpretable visual representation
 - Define the mapping function to algorithmically convert data to geometry
- The algorithmic requirement is important
 - Not a “one time design”
 - Repeatable for a defined class of data
 - What types of data? What prerequisites are there?
 - What are the “edge cases” that need to work?
 - How would the appearance of outliers impact the design?
 - How will it scale to larger volumes of data?
 - This is what makes mapping challenging



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