Formal Privacy for Complex Data Objects
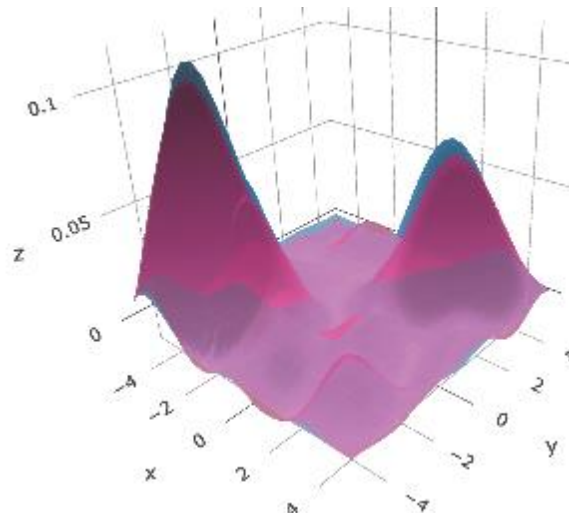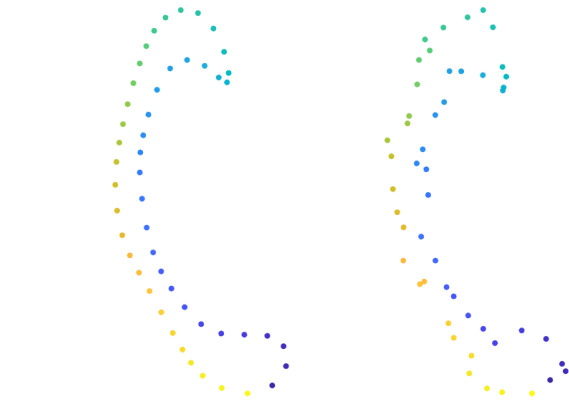
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Challenge:

- How to obtain formal privacy guarantees with complex data such as functions and images without destroying data utility.

Solution:

- Utilize tools from functional analysis and differential geometry to exploit inherent structure.

- Propose new privacy mechanisms for functions, shapes, and other complex objects.

Scientific Impact:

- Large amounts of data being collected on individuals with intricate dependencies.

- Dramatic gains in statistical utility can be achieved by exploiting aspects inherent to the data.

Broader Impact and Broader Participation:

- Many highly sensitive data being collected, used and shared by government and industry.

- Our framework better supports facial images, medical scans, etc., compared to old paradigm.