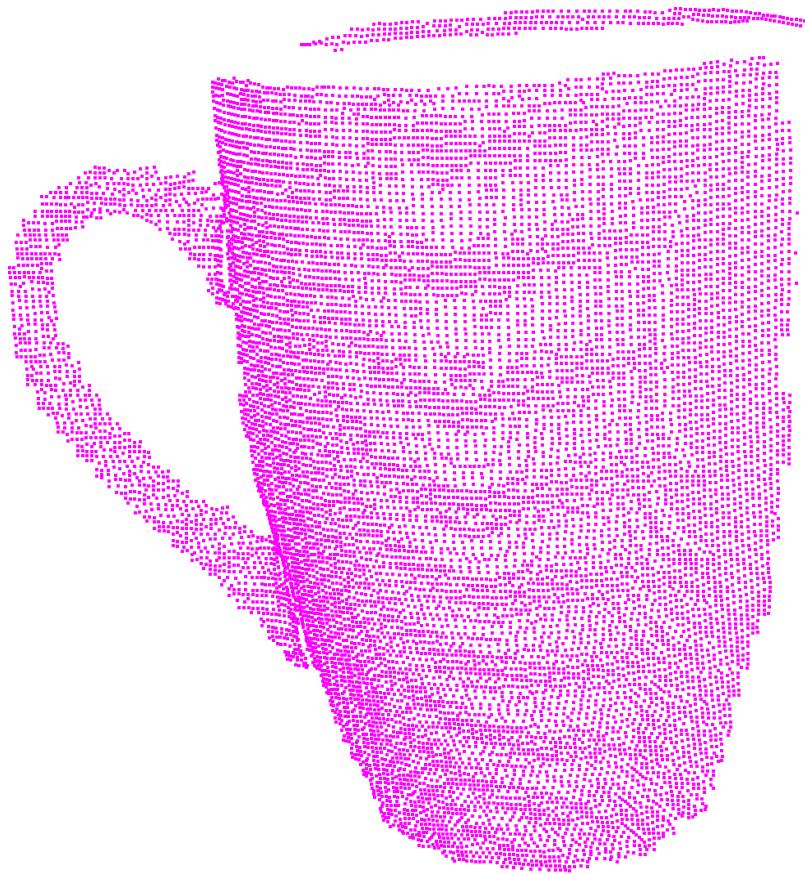
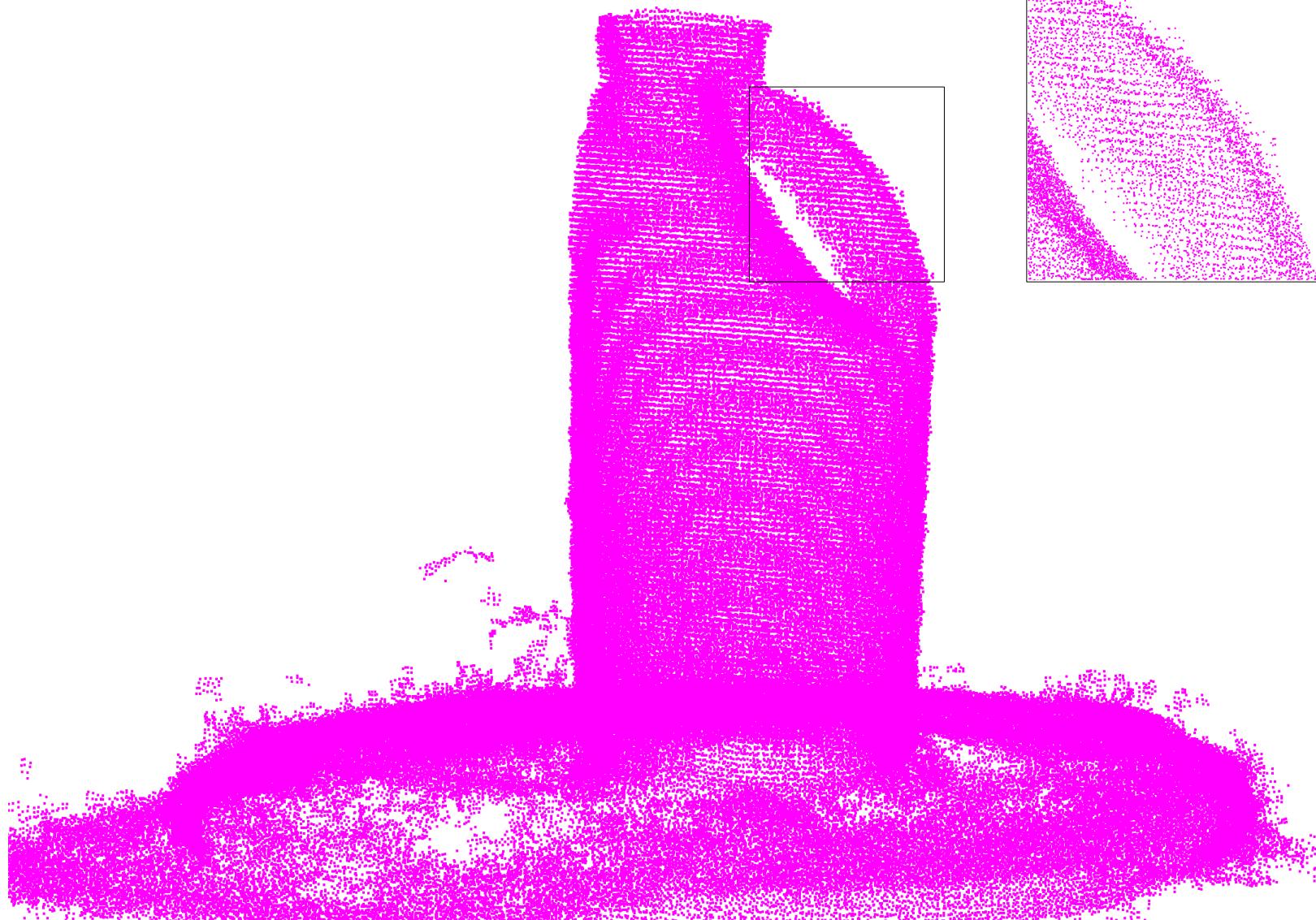

Surface Reconstruction from Point Cloud

Rosie Li
Washington University in St. Louis

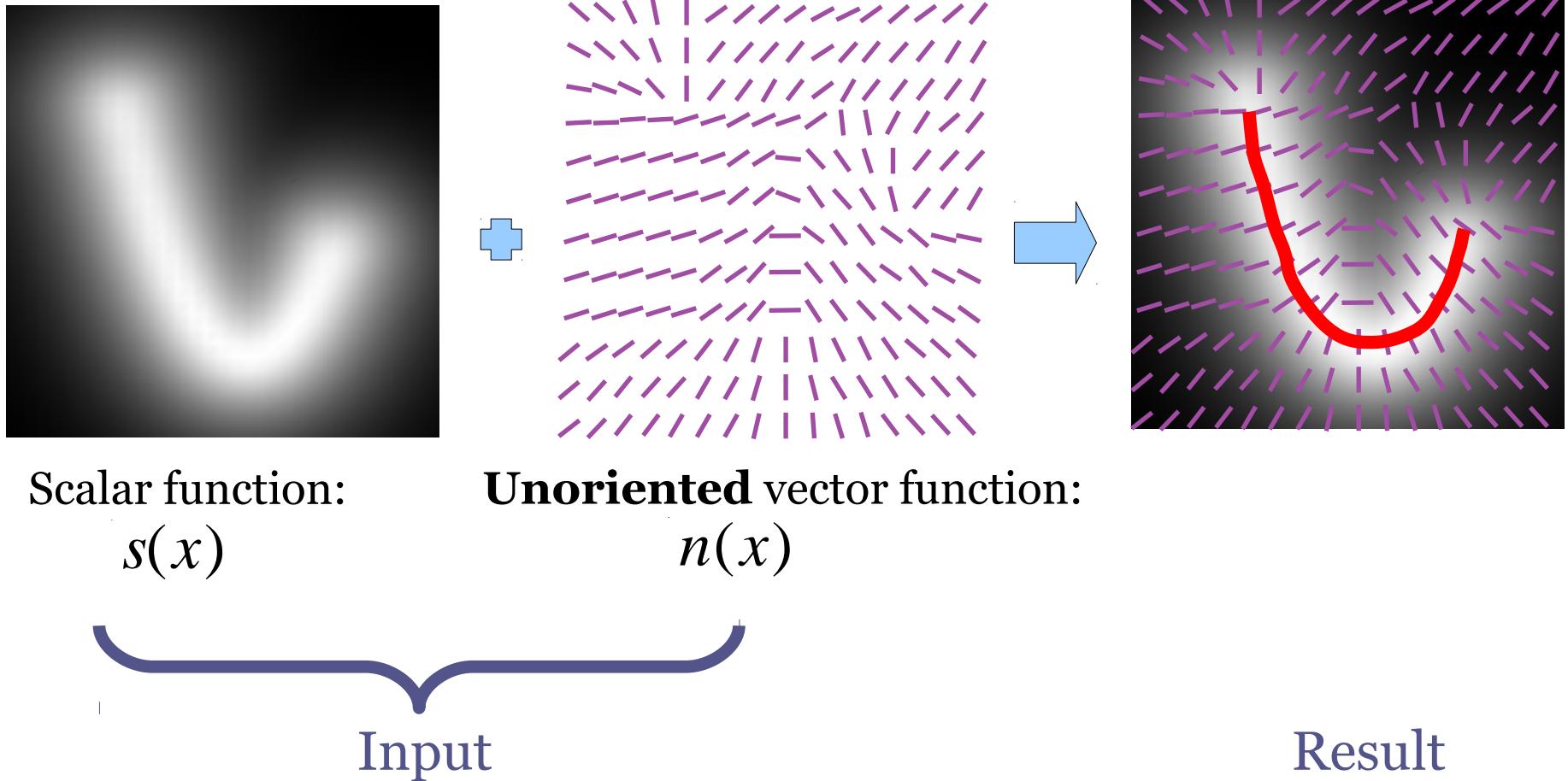
Point Cloud



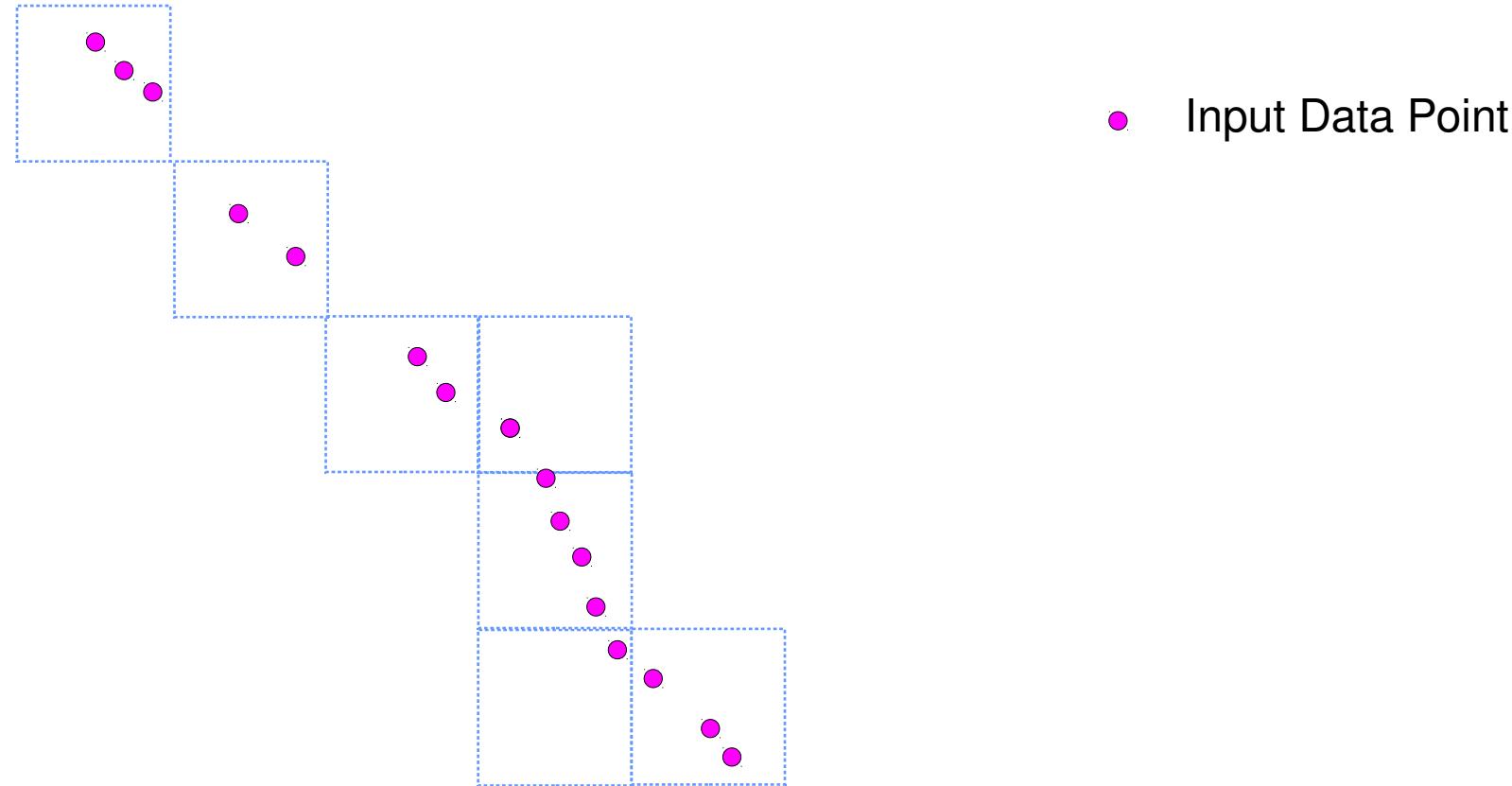
Point Cloud



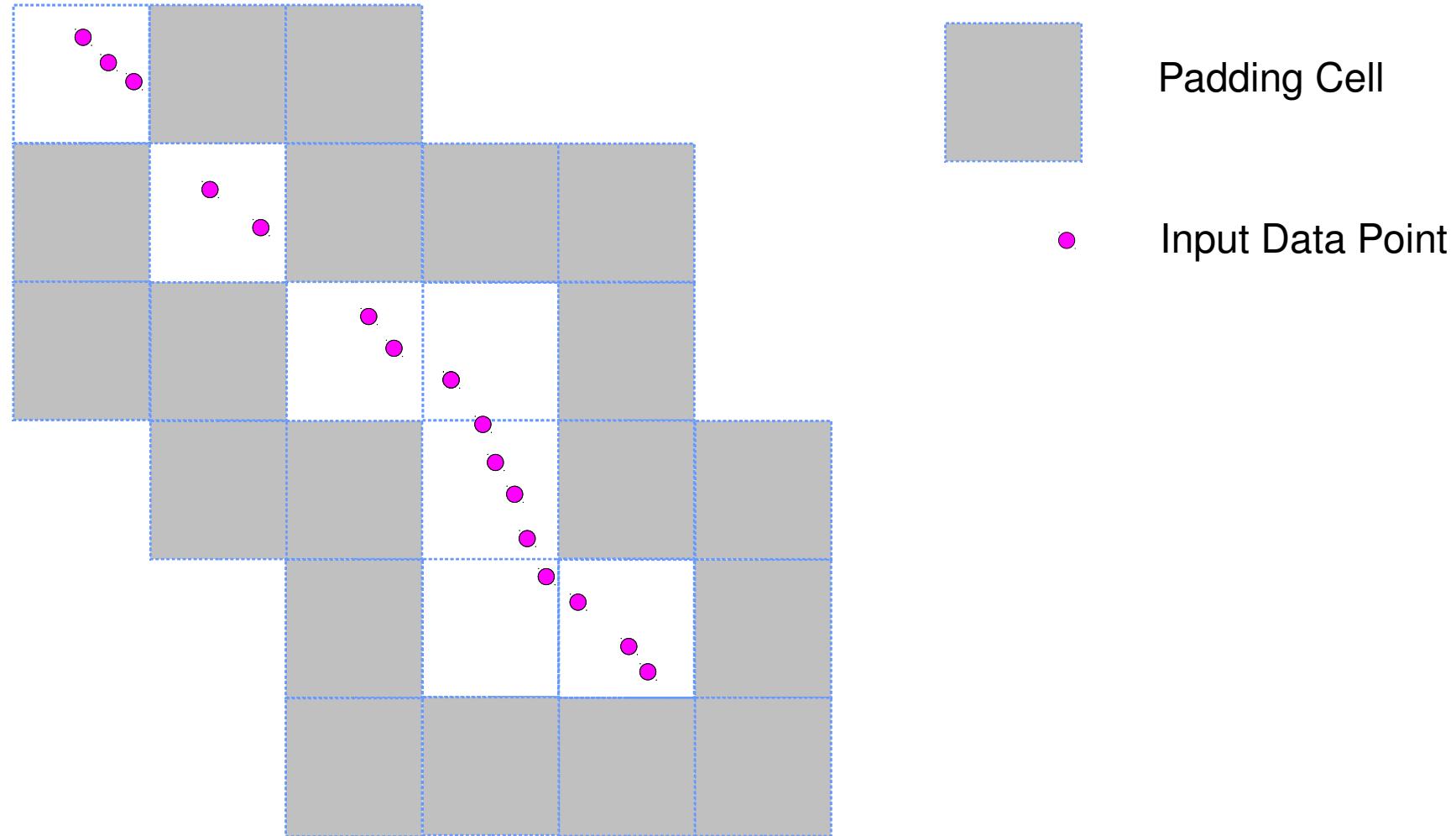
Algorithm Overview



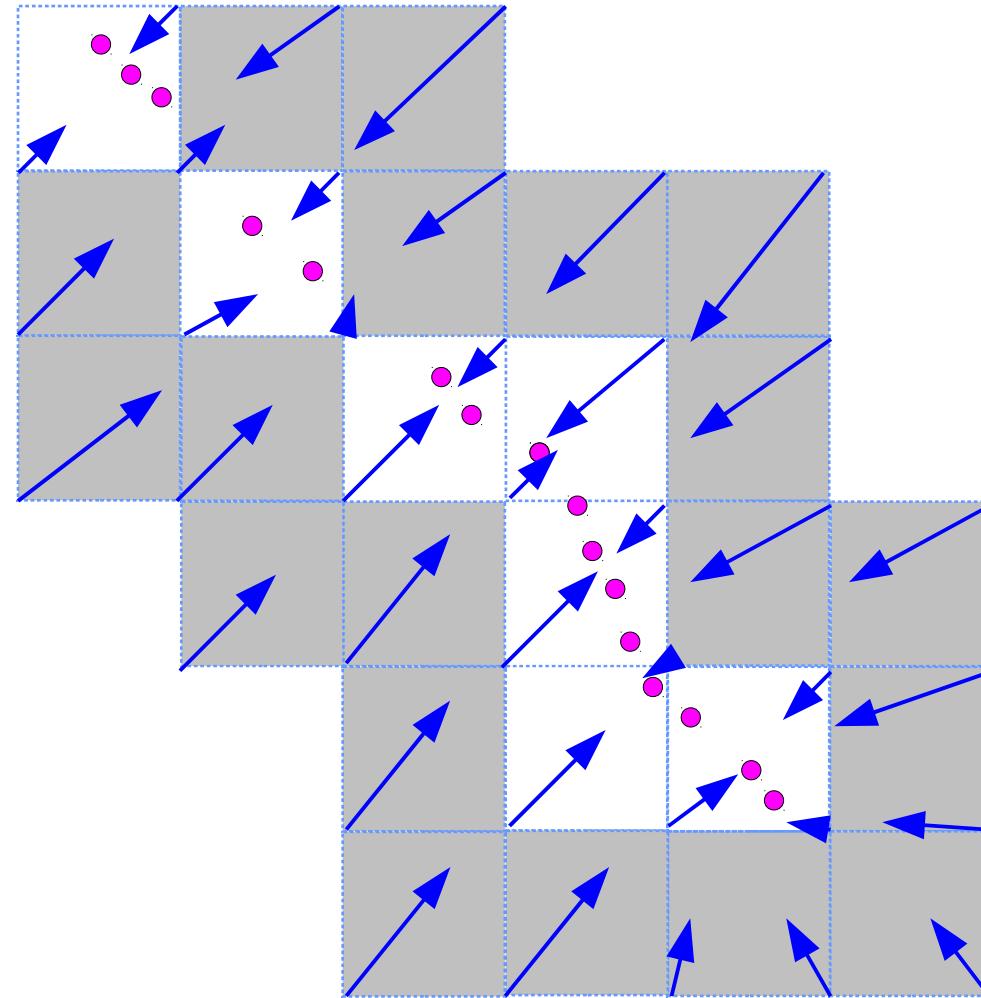
Surface Reconstruction



Surface Reconstruction



Surface Reconstruction

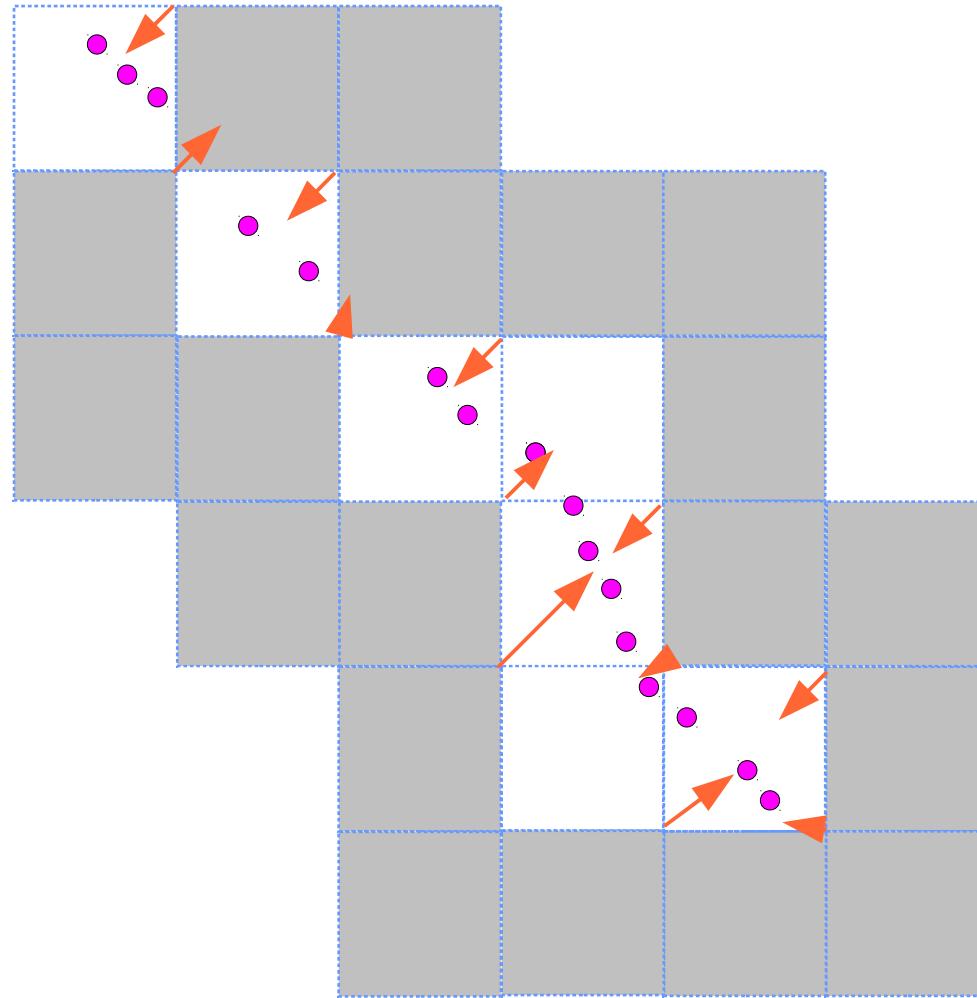


Padding Cell

● Input Data Point

→ Vector At Grid Point

Surface Reconstruction

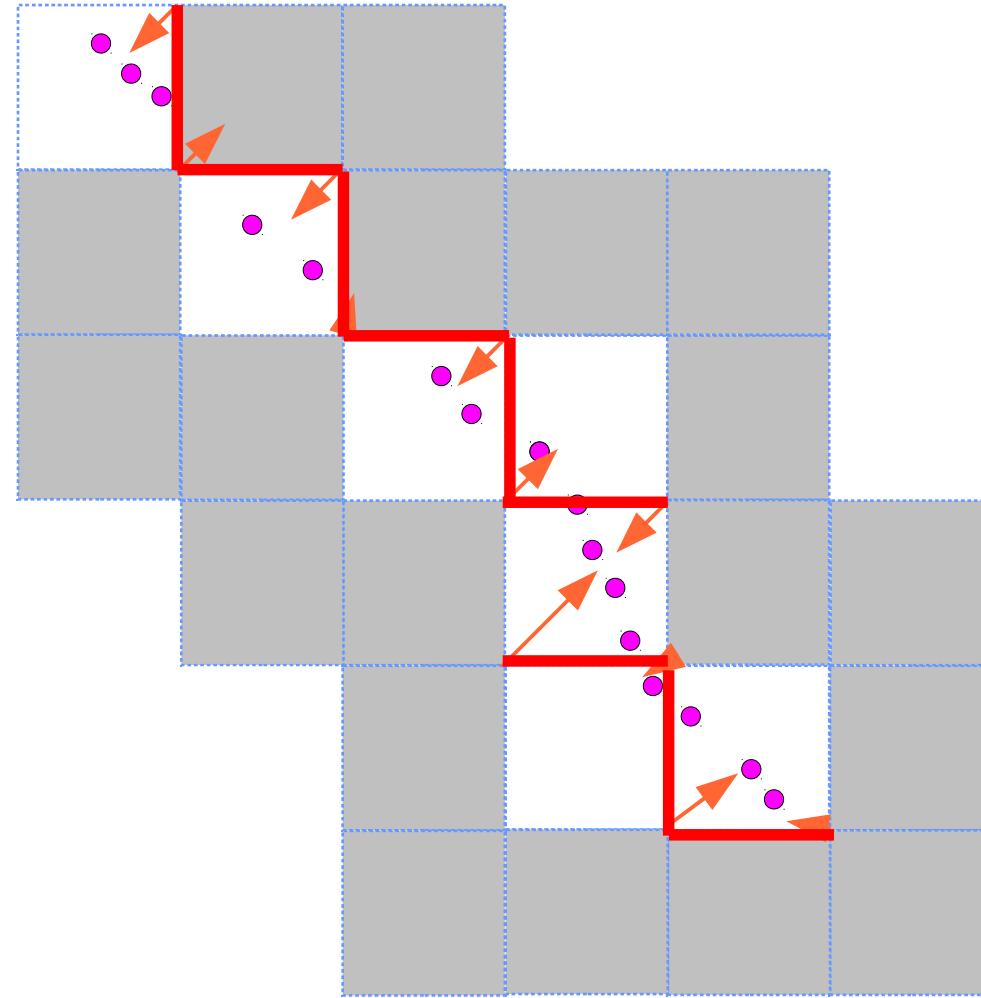


Padding Cell

● Input Data Point

→ Vector with Opposite Directions

Surface Reconstruction



Padding Cell

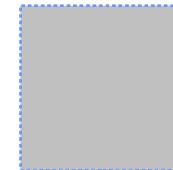
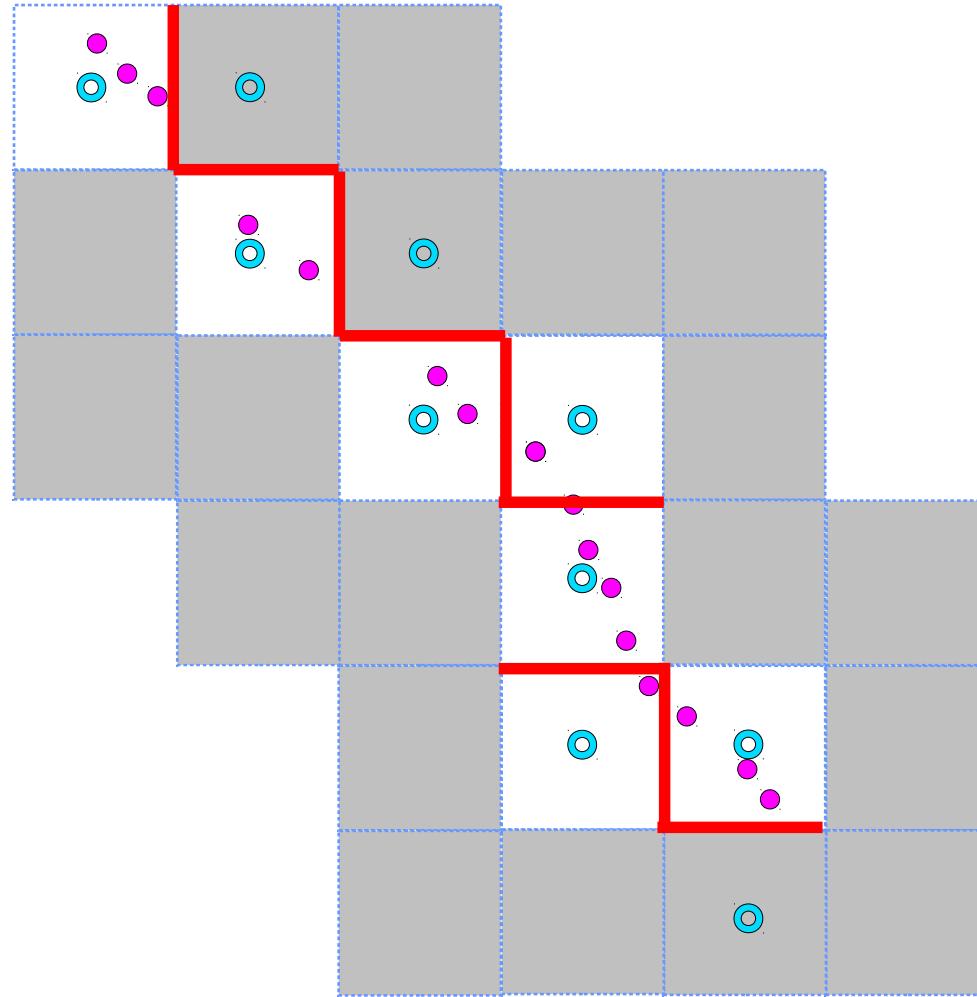
● Input Data Point

↗ Vector with Opposite Directions



— Edge that Intersected by the Surface

Surface Reconstruction



Padding Cell

● Input Data Point



Vector with Opposite Directions

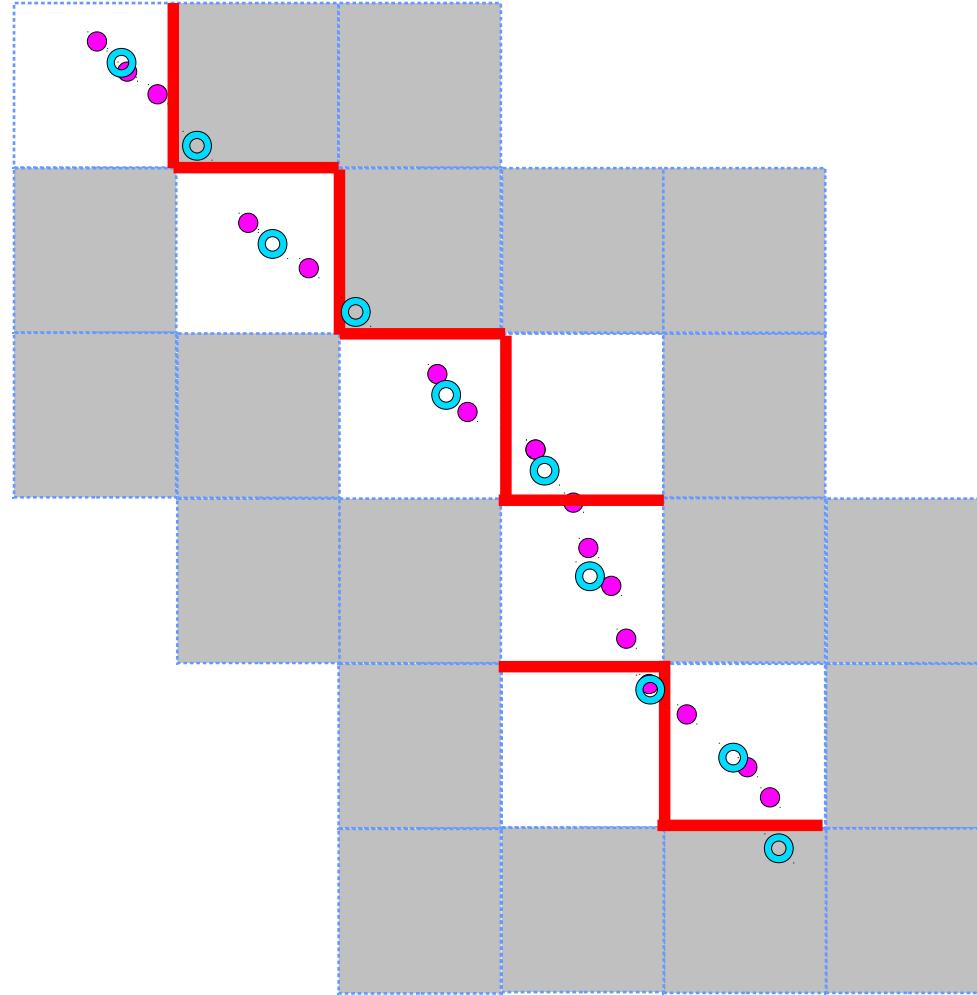


Edge that is Intersected by the Surface



○ Center of Cell that Contains the Intersected Edge(s)

Surface Reconstruction



Padding Cell

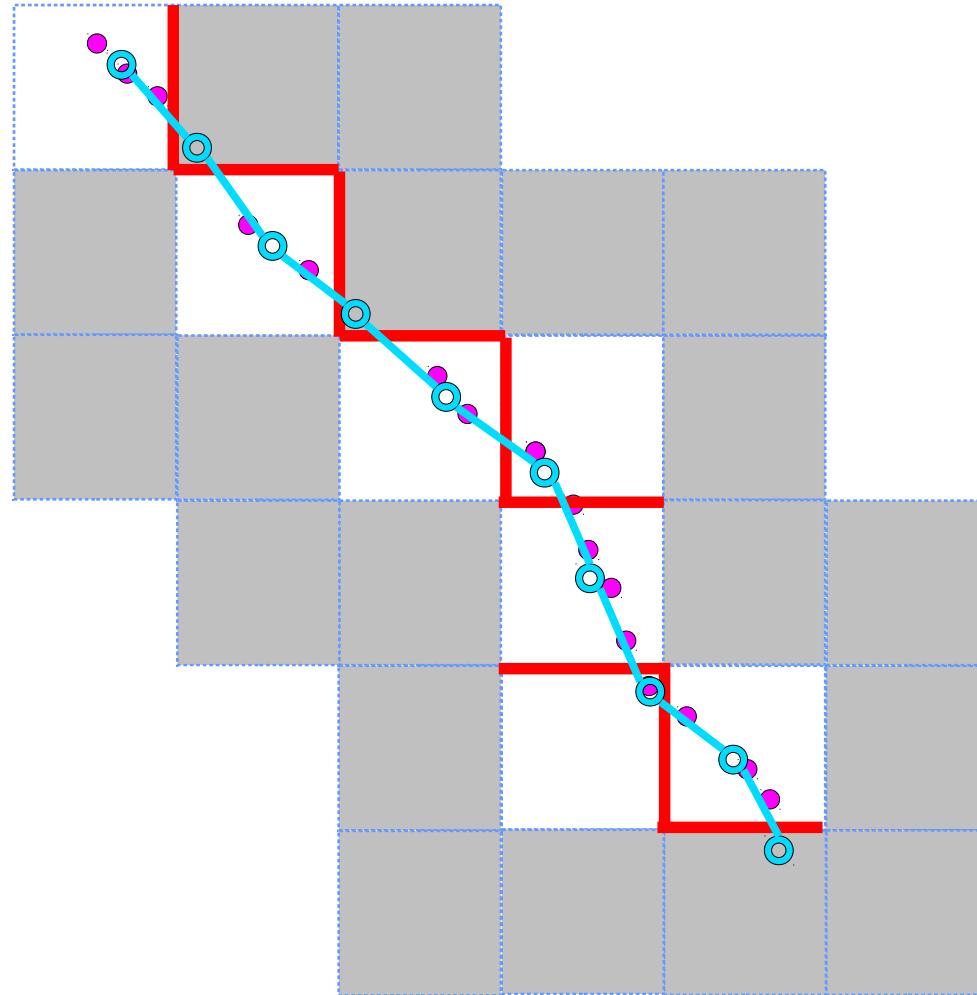
● Input Data Point

↗ Vector with Opposite Directions

— Edge that is Intersected by the Surface

○ Center of Cell that Contains the Intersected Edge(s) after Projection

Surface Reconstruction



Padding Cell

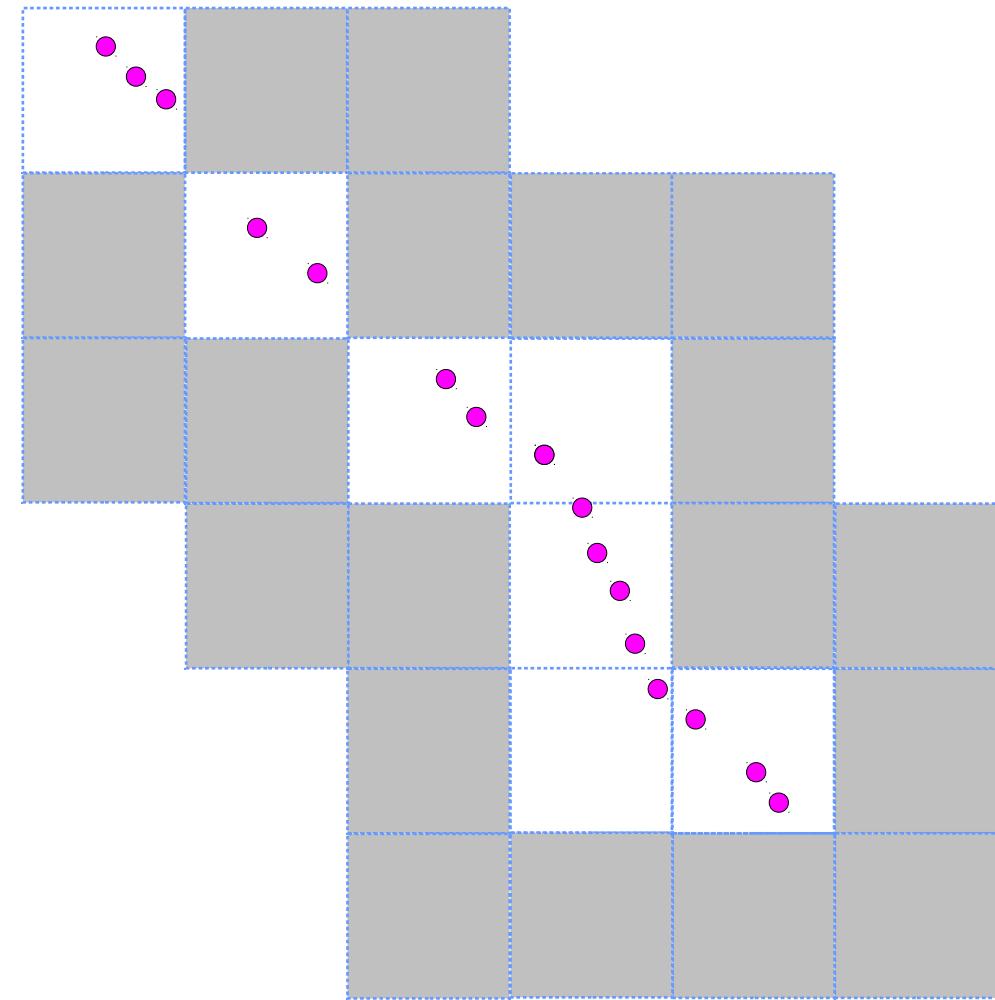
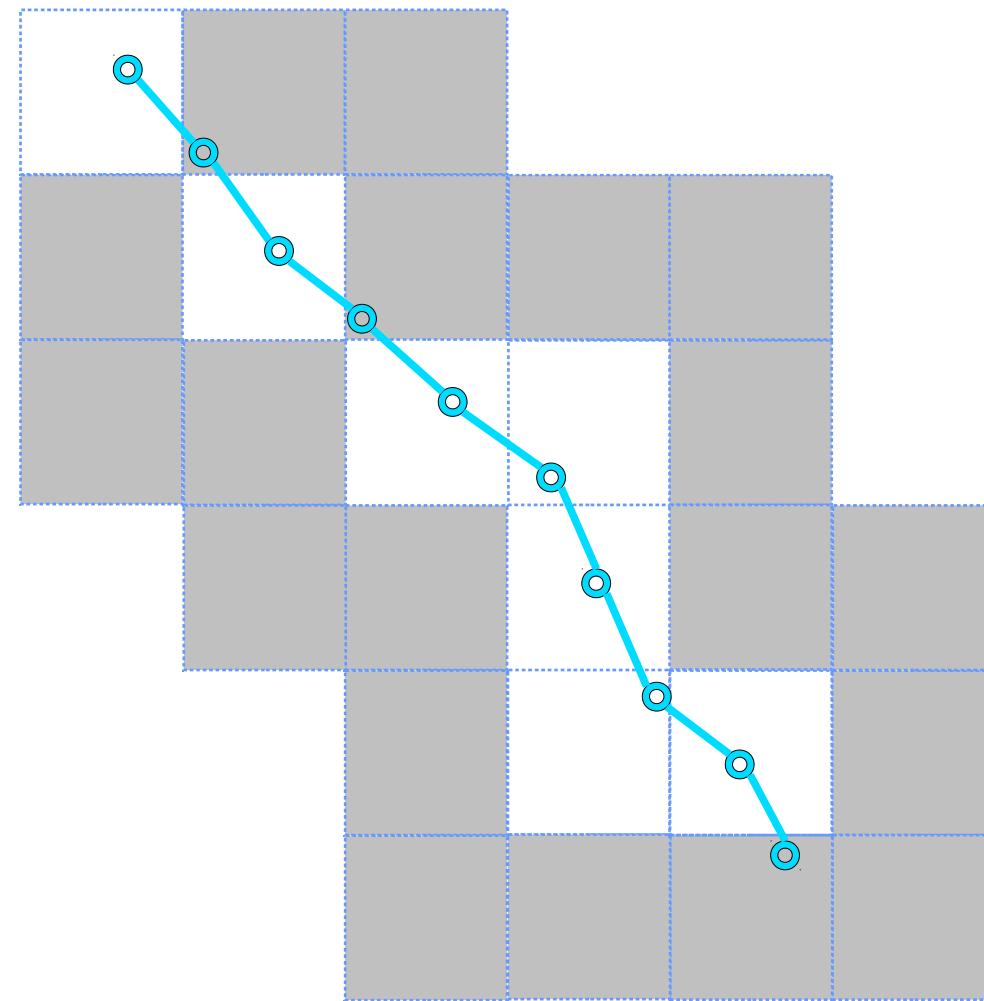
● Input Data Point

↗ Vector with Opposite Directions

— Edge that is Intersected by the Surface

○ Center of Cell that Contains the Intersected Edge(s) after Projection

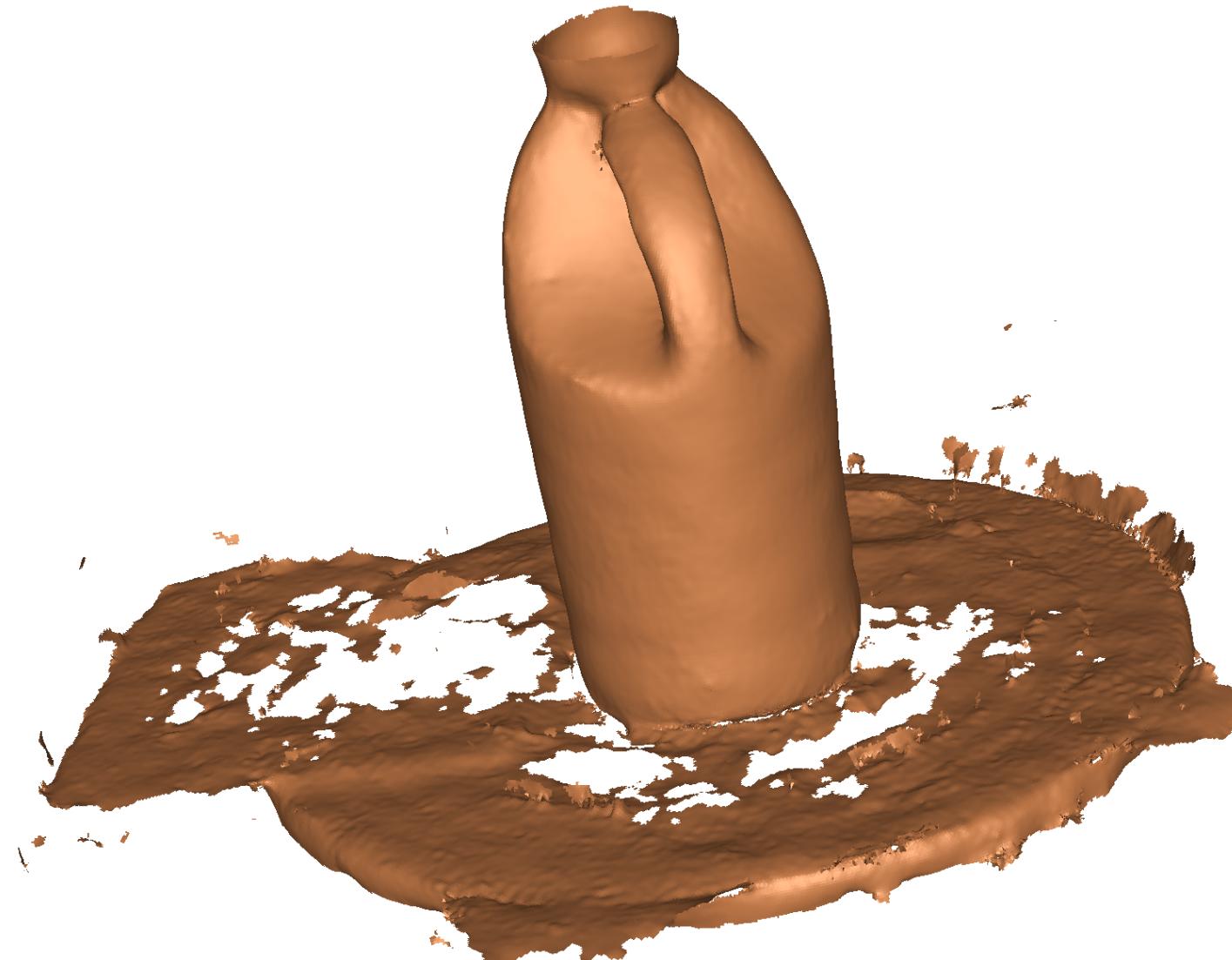
Surface Reconstruction



Result



Result



Conclusion

- Contribution
 - Create smooth surface
 - Fill small holes by selecting appropriate padding size
 - Fast access of cell information through the hash table
- Future Work
 - Adaptive padding size
 - Parallel computing