



IATK

An Immersive Analytics Toolkit

COURSE: HUMAN COMPUTER INTERACTION

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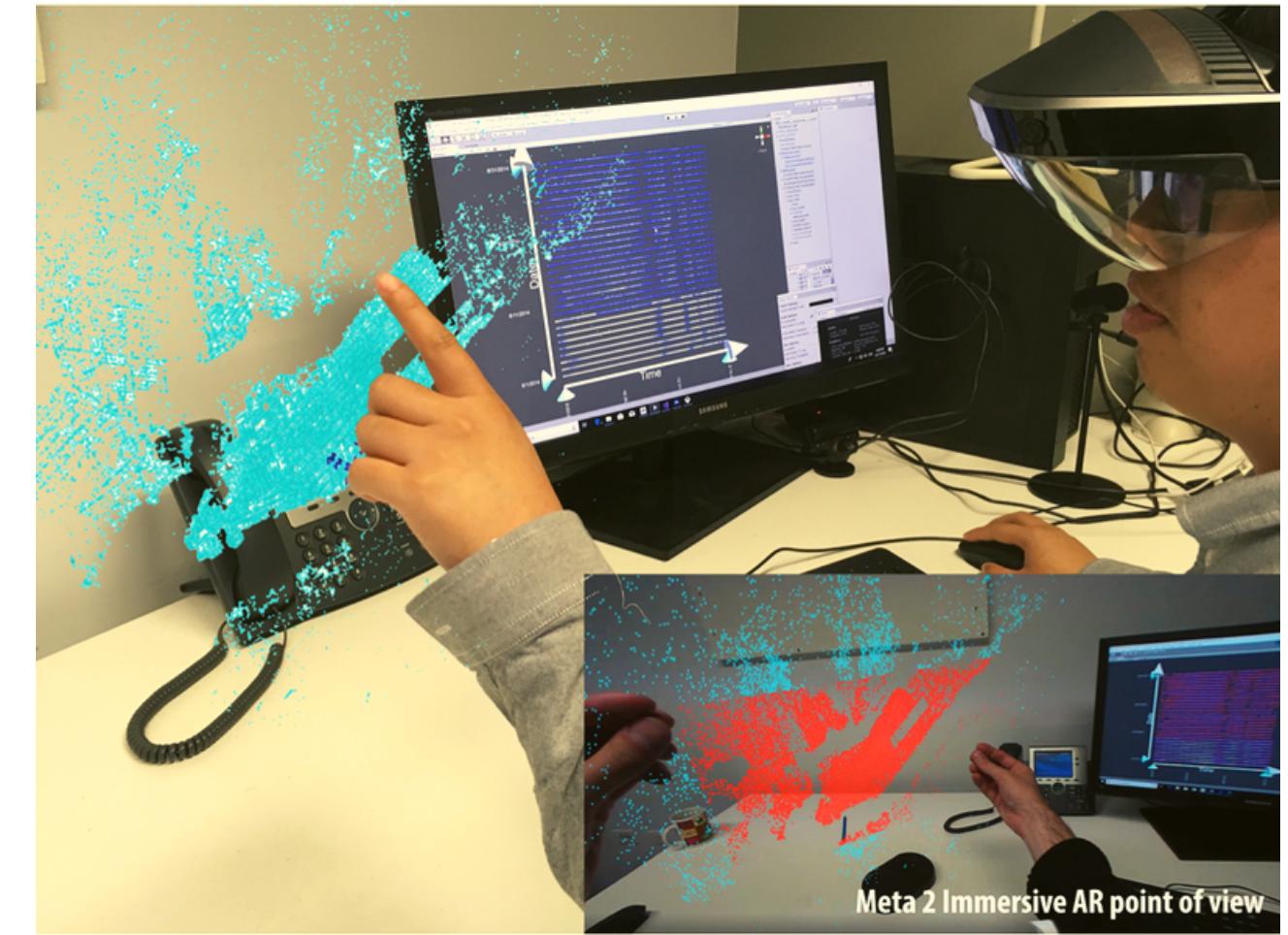


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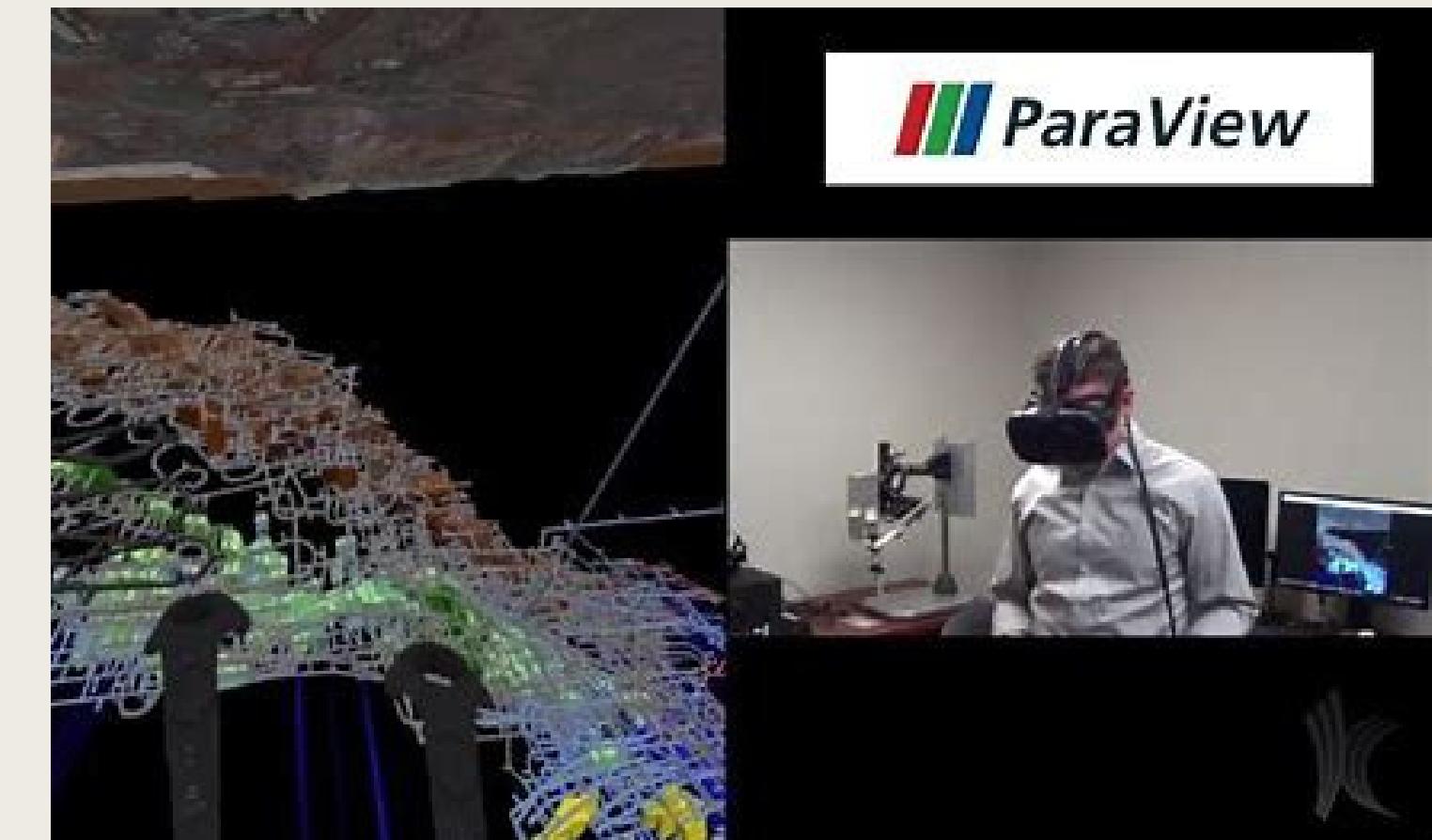
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Background & Related Works

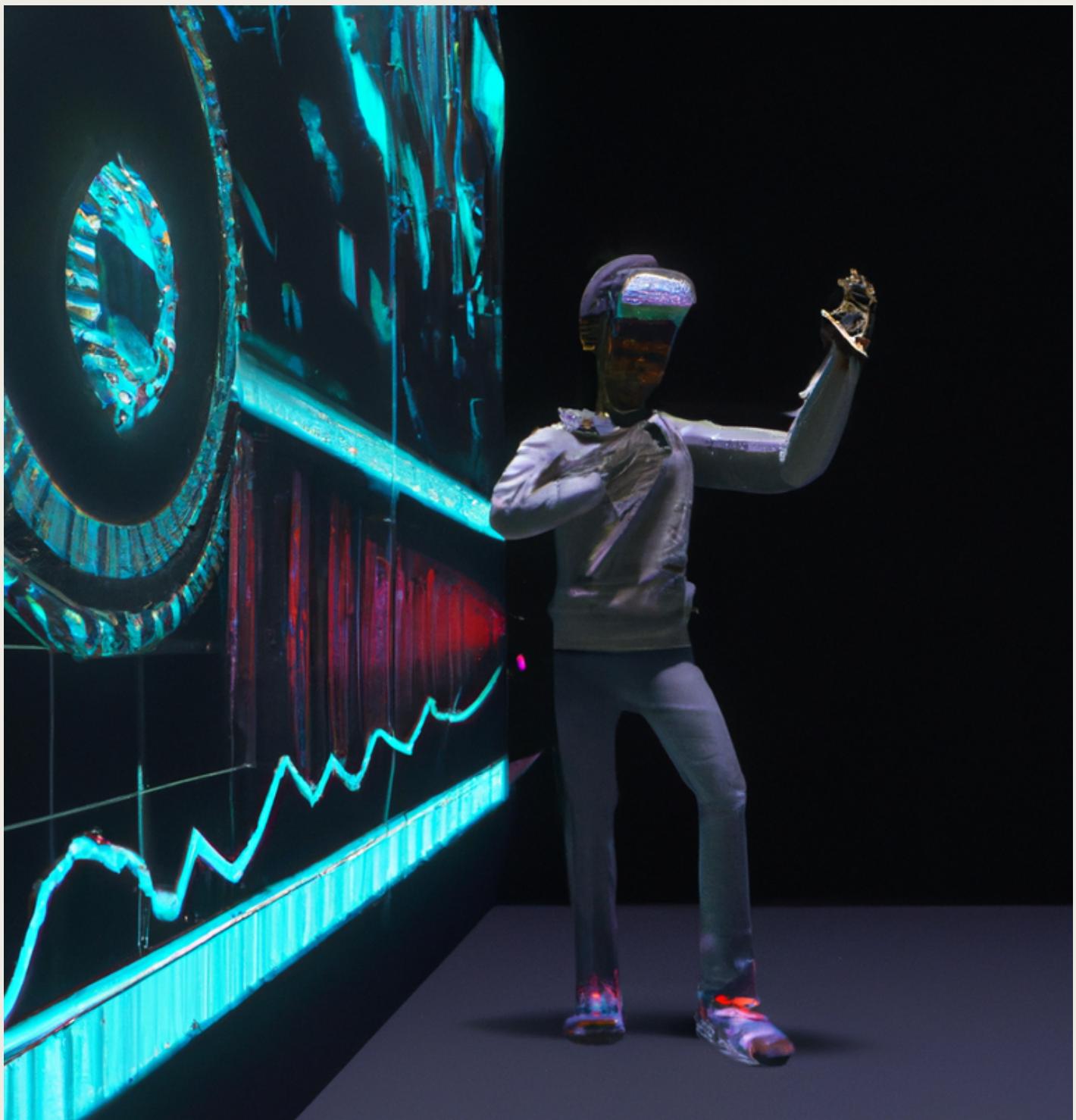
CAVE system



Head Mounted Display

Introducing IATK

- IATK is an **Immersive Analytics Toolkit**
- Virtual Reality tool
- Explore and Analyze **large data sets**
- Users may examine data points, acquire insights more quickly than ever before thanks to its **user-friendly interface**
- **3D** environment



TARGET USERS

- *Data visualisation, virtual reality and Human Computer Interaction experts* (researchers, PhD students, and engineers from industry).
- Open-source toolkit that enables users to create data visualisations and immersive analytics systems



WHY IATK?

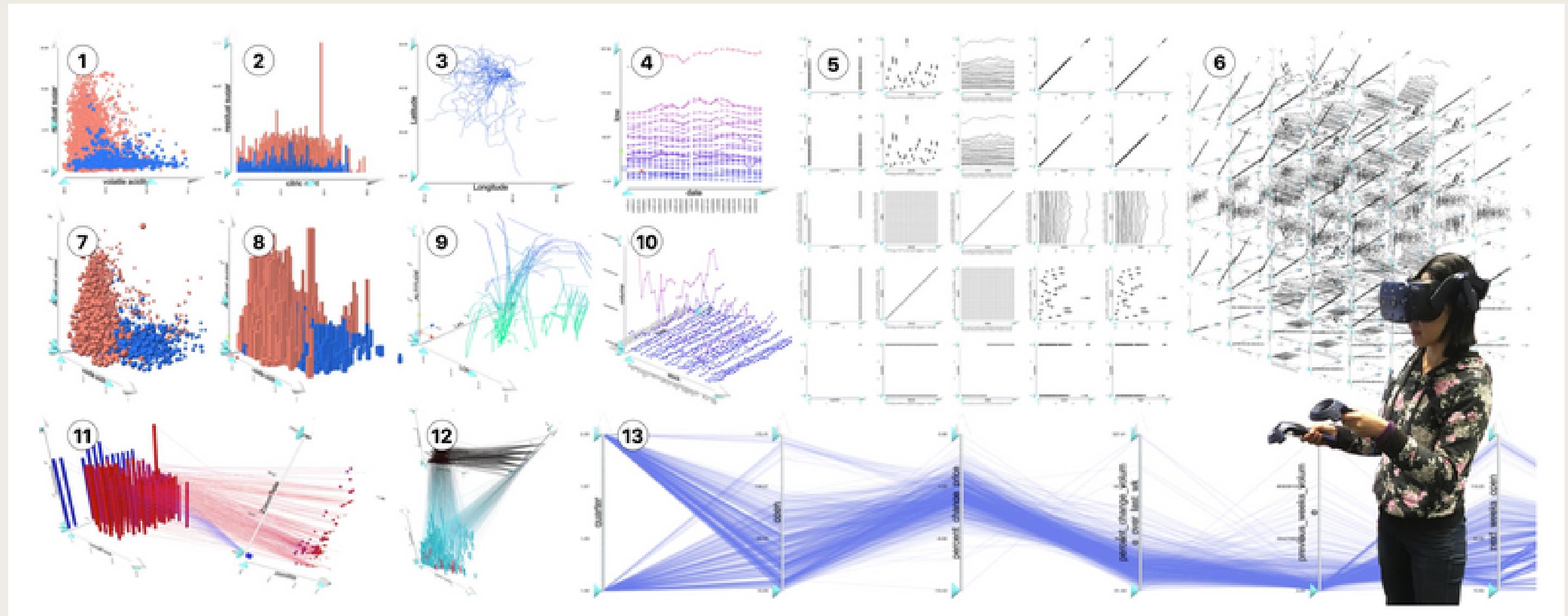
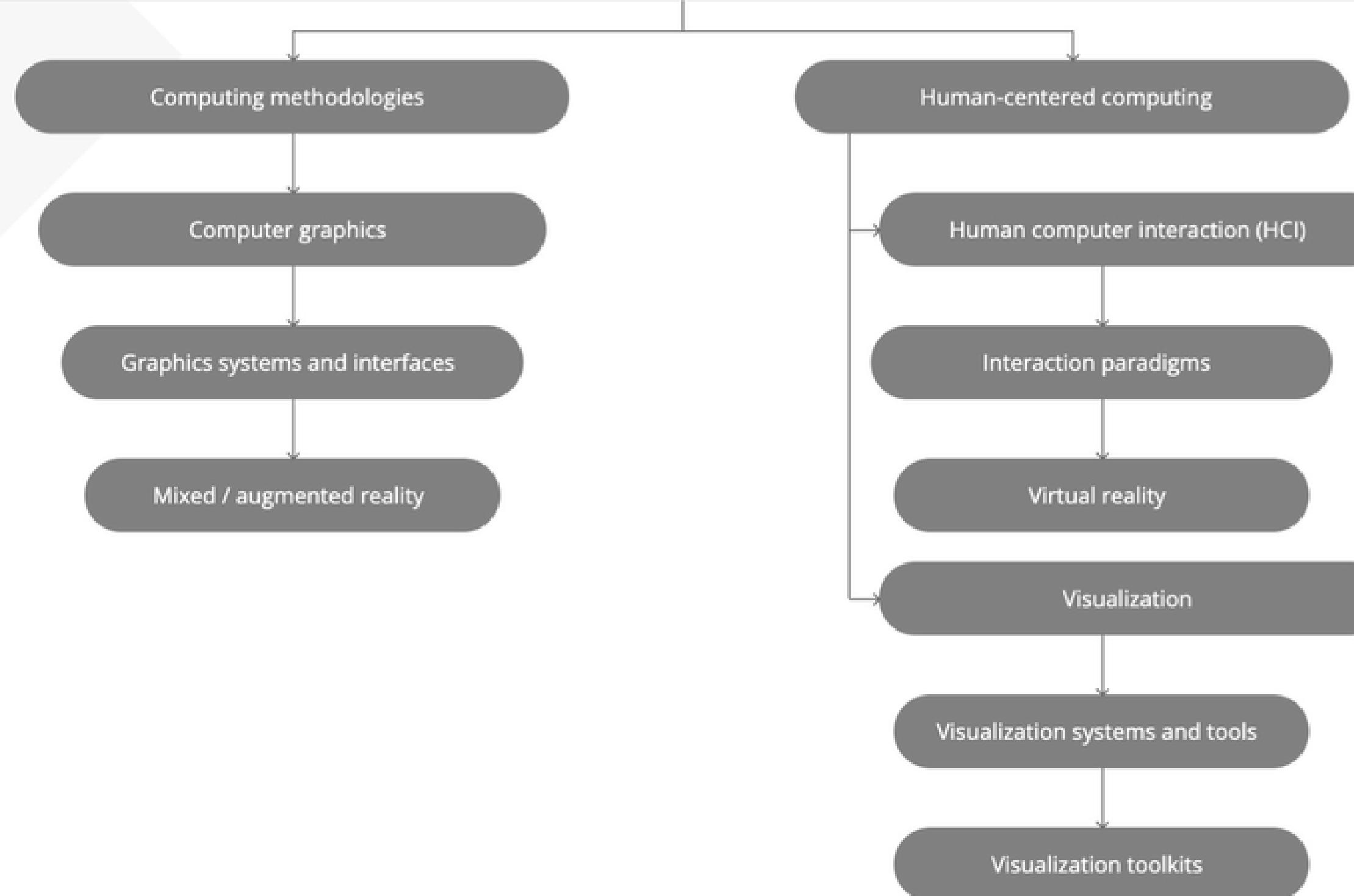


Fig. 1 - IATK is a scalable and expressive visualisation toolkit that enables the creation of large, multidimensional data visualisations in immersive environments

Introduction to IATK: An Immersive Visual Analytics toolkit



Requirements & Architecture



Expressiveness



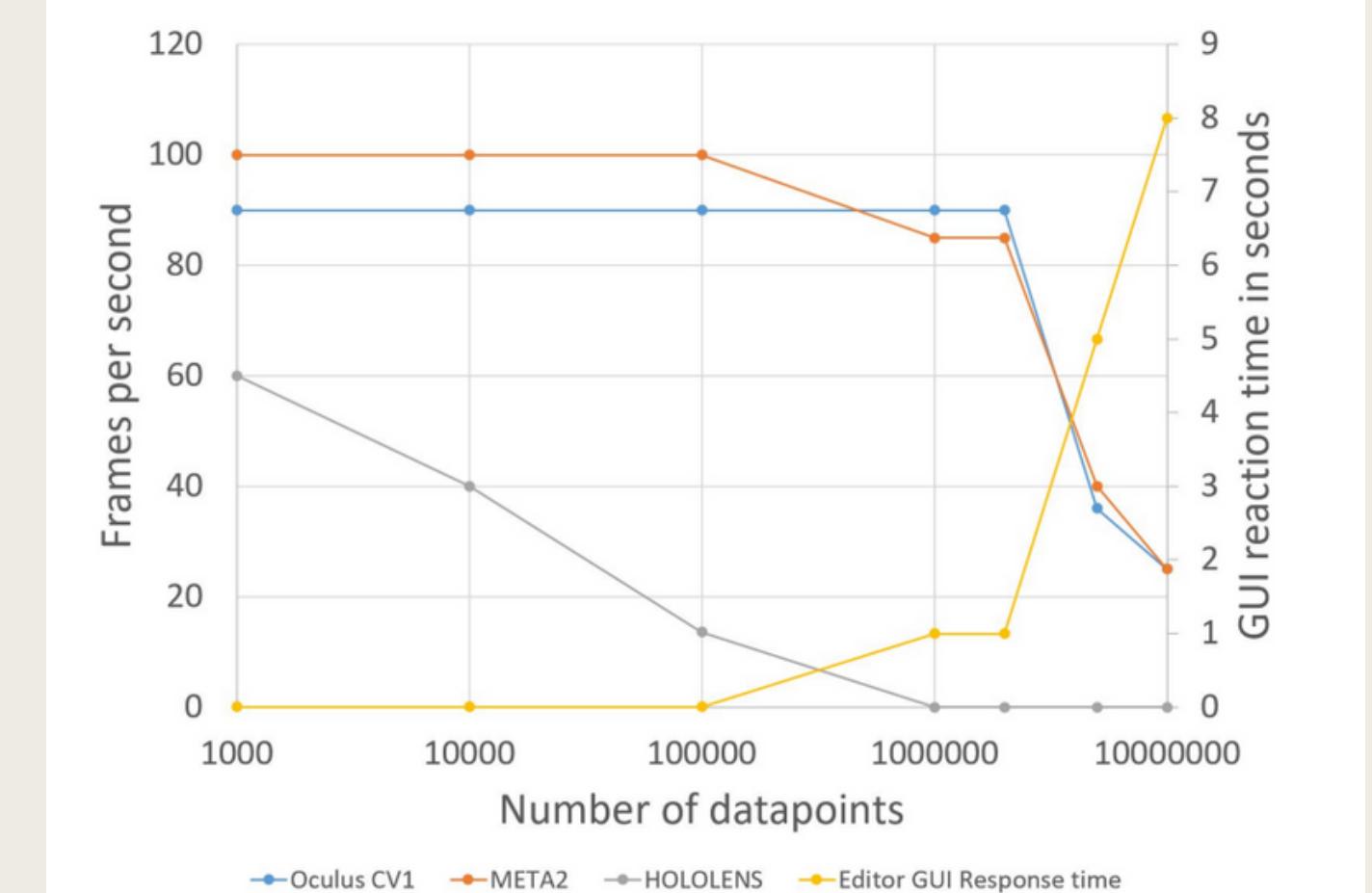
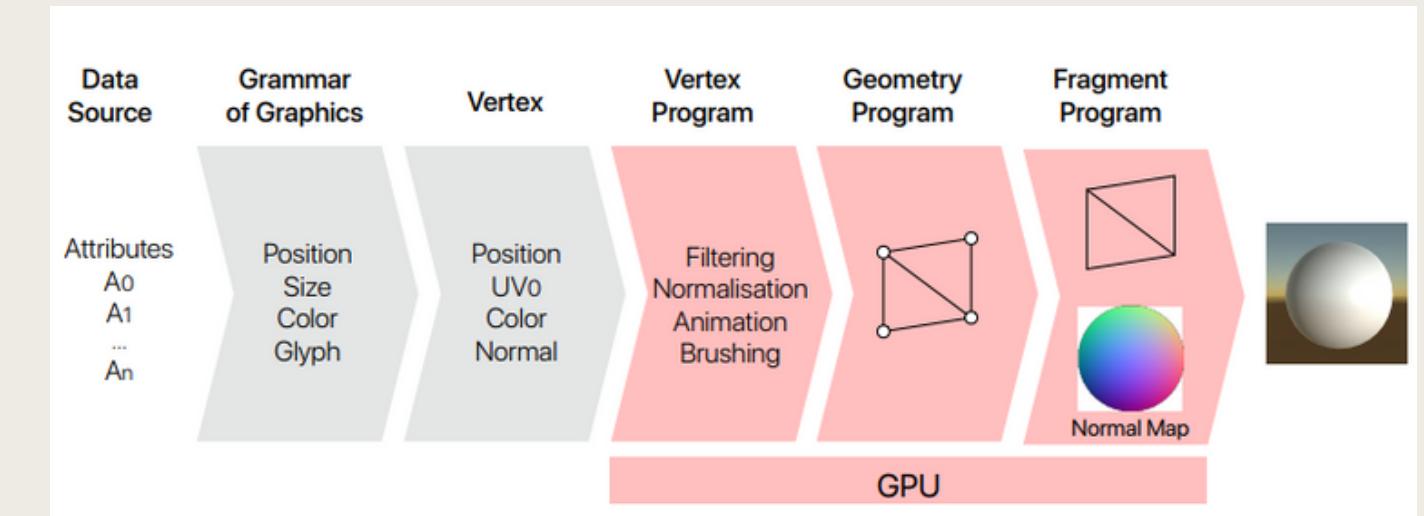
Simple Authoring



Scalability



Bridge MR and
Desktop environments



Benefits & Applications



- ✓ Natural and Intuitive way to explore Data
- ✓ Multiple Users to explore data in realTime

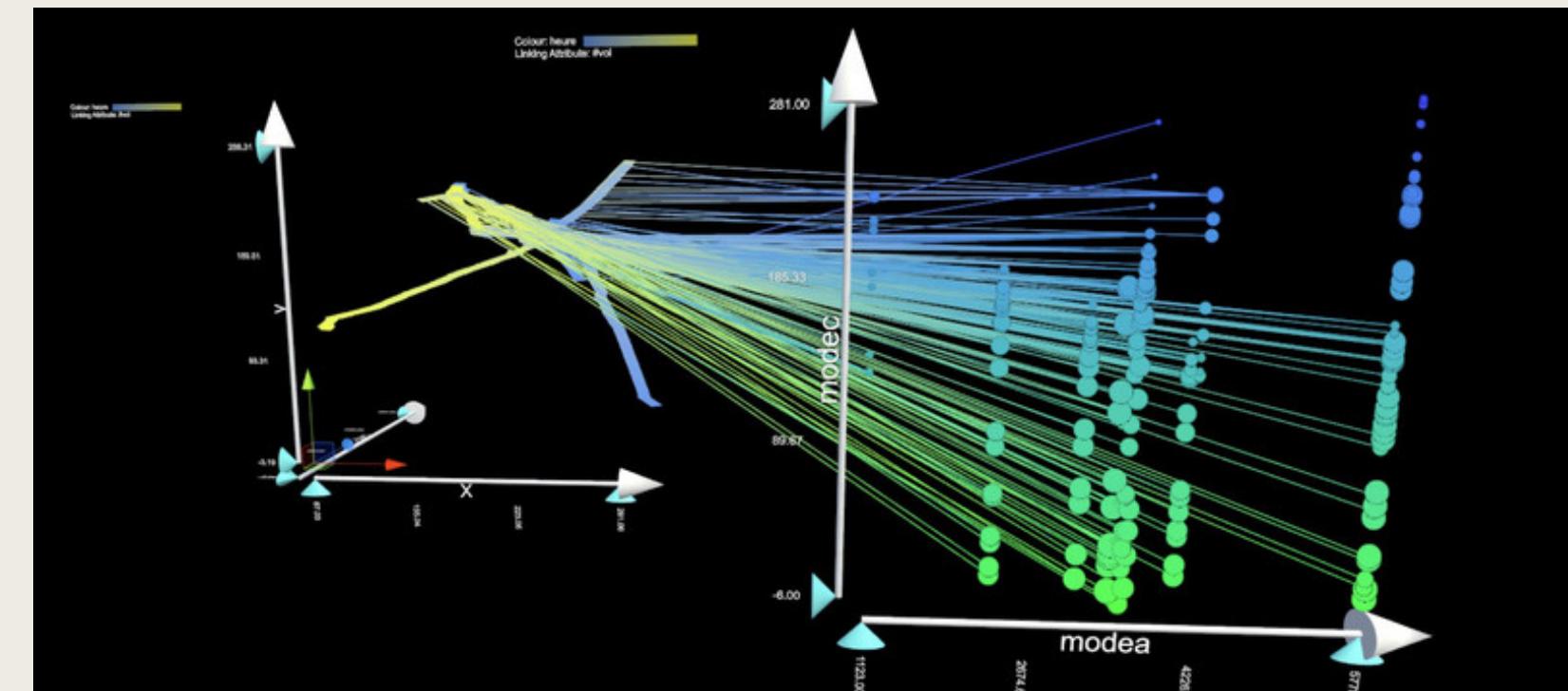
- ✓ Scientific research
- ✓ Business Intelligence
- ✓ Education

X

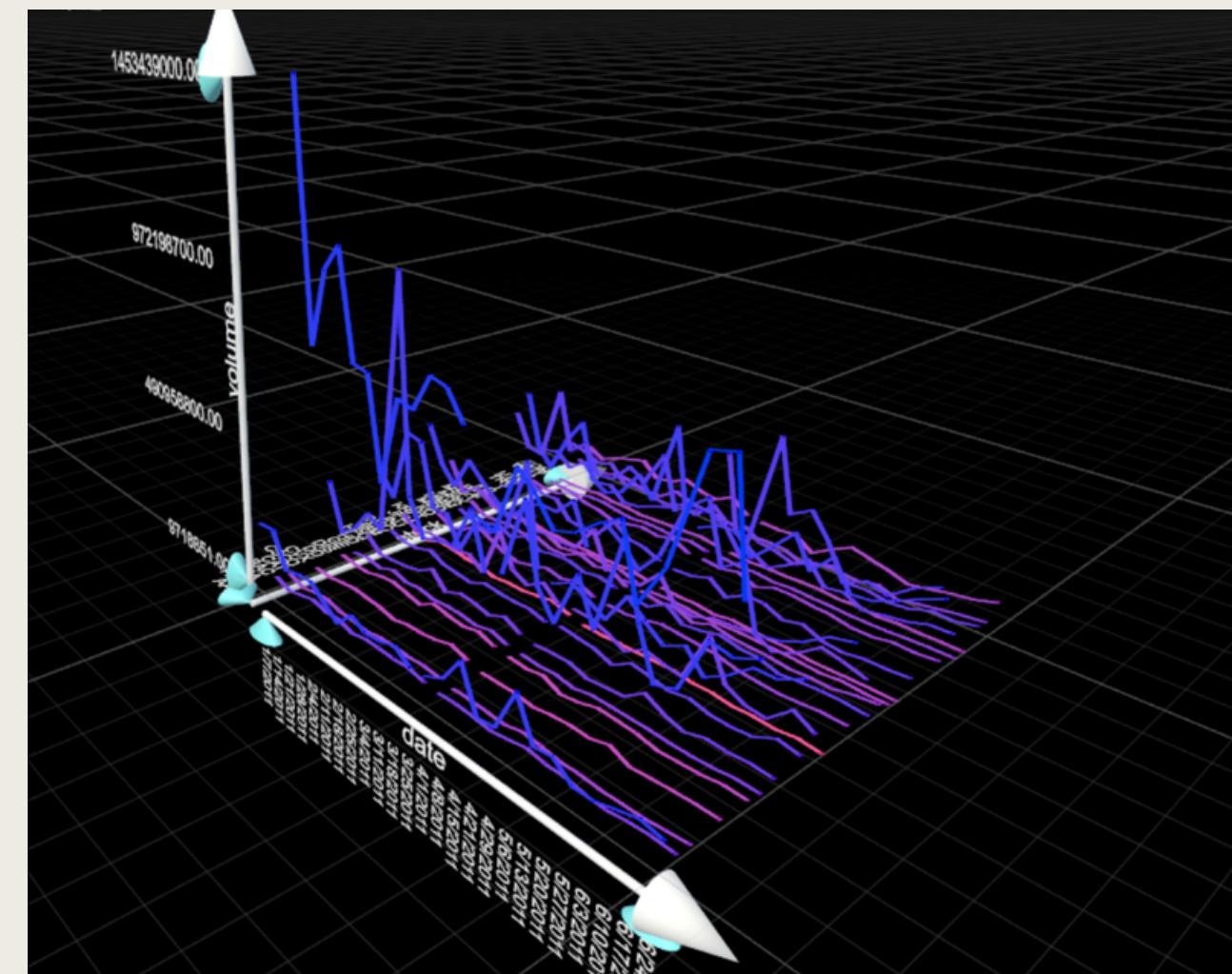
Framework



Data Model



Grammar of Graphics



Interaction Model

Main aspects addressed in this paper

- ✓ Design requirements, technical features, and user interface of IATK
- ✓ Application examples and performance tests of IATK for immersive visual analytics of large data sets
- ✓ Data model used by IATK, which abstracts data files into a data table used by the visualization components
- ✓ Importance of expressive visualizations in exploring complex data



Importance of expressive visualizations in exploring complex data

- Using **expressive visualizations** is crucial for exploring complex data
- Different aspects of data, such as time, geography, and connections, need specific **visualization solutions**
- A variety of visualizations, such as **scatterplots, parallel coordinates, scatterplot matrices, and graphs**, are necessary to provide **different perspectives** on the data

Use Case & Future Work

- Building an **augmented reality desktop setup** that uses a head-mounted **AR** device and hand gestures to explore data
- Interaction with data in a more **intuitive** and **immersive** way
- Power and flexibility of the IATK framework for building advanced **immersive visualisations**



Conclusion

- Virtual reality tool that enables users to explore and analyze large data sets.
- User-friendly interface and robust functionality.
- IATK, the ideal tool for data analysis



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Thank You!