

Prototyping a Building Management System with ComVis **VAST Mini Challenge 2**

Honorable Mention: Effective Support for Building Management

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CHALLENGE

Building data management for GasTech Office fully instrumented with sensors
 Staff members wear RFID sensors
 Target detect:
 . Typical patterns
 . Anomalies
 . Relationships

ComVis [1]

Multiple coordinated views
 Many different views
 Linking and brushing
 → enables fast prototyping

INPUT DATA

Floor maps
 Employees list
 Proximity data: RFID, mobile robot
 Sensors in office (temperature, CO₂,...)

USER-CENTRIC DATA

Employees with name, department, office, ...
 For each day save:
 . Location at a specific time
 . Number of logs (mobile, fixed)
 . Start and end time
 . Hours in building

transformation

OCCUPANCY DATA

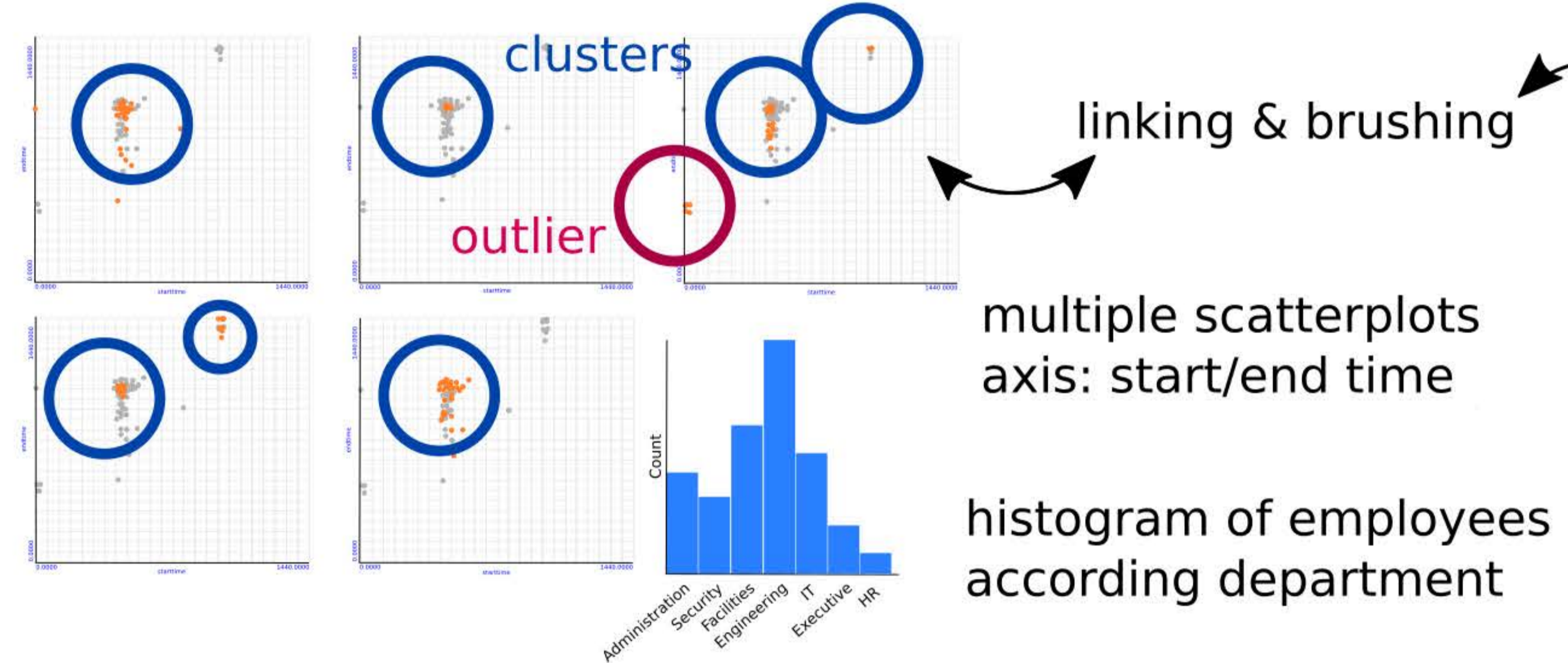
Number of person in each zone in each 15 minutes interval

BUILDING DATA

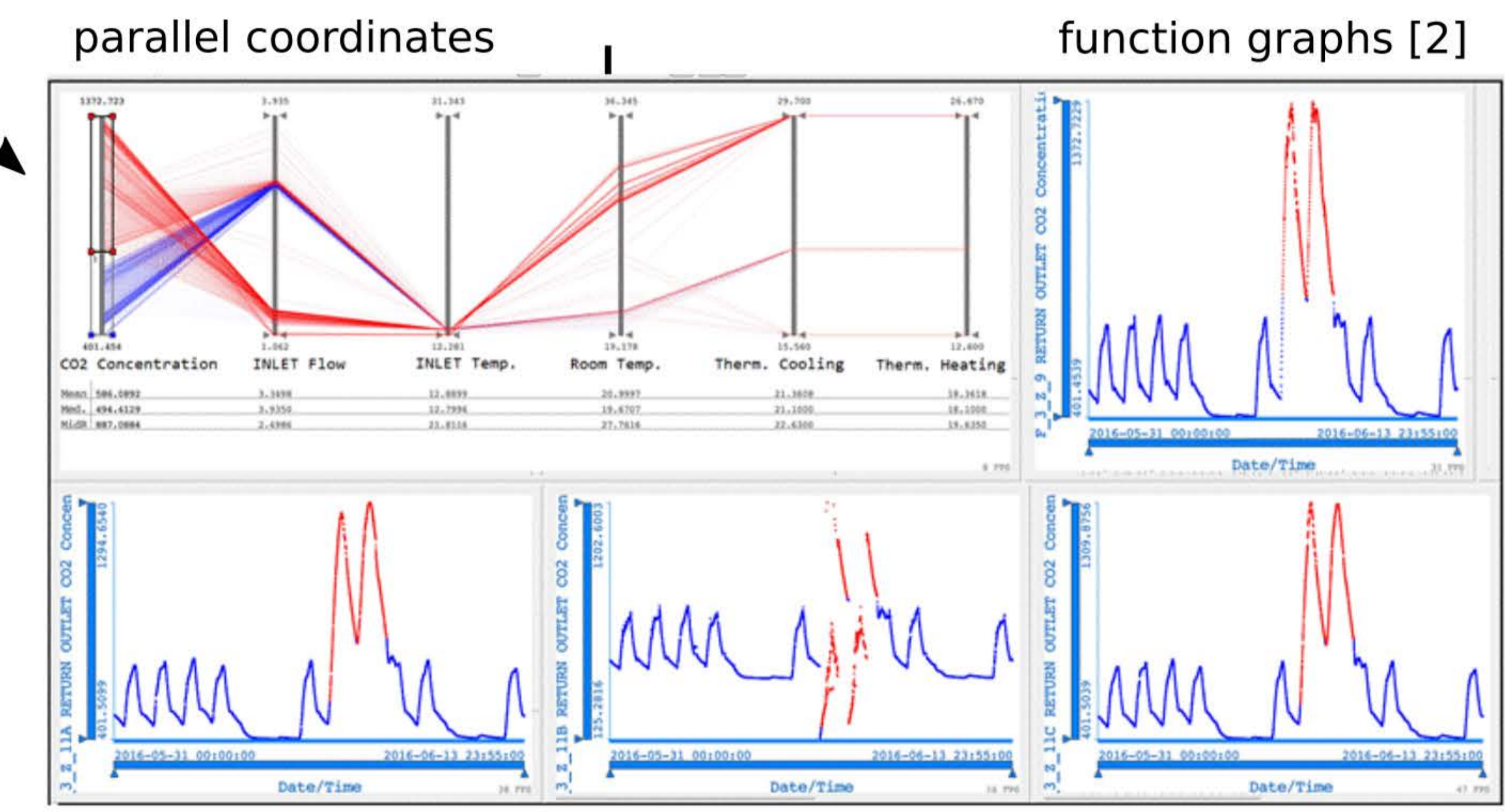
Sensor Data (temperature, CO₂,...)
 Location
 For each day save:
 . Sensor value for every 5 minutes

VISUALIZATIONS & RESULTS

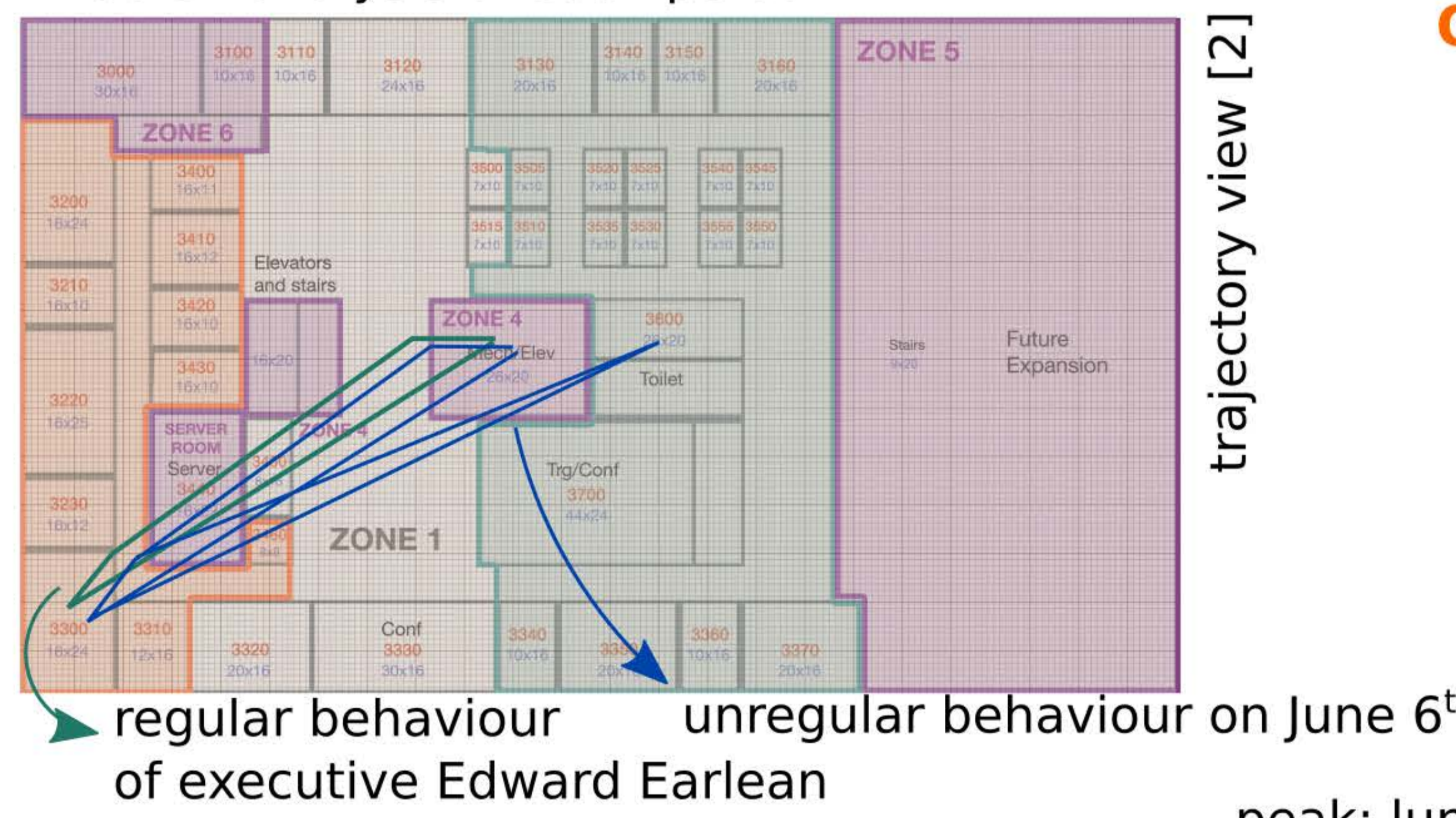
WORKING TIME



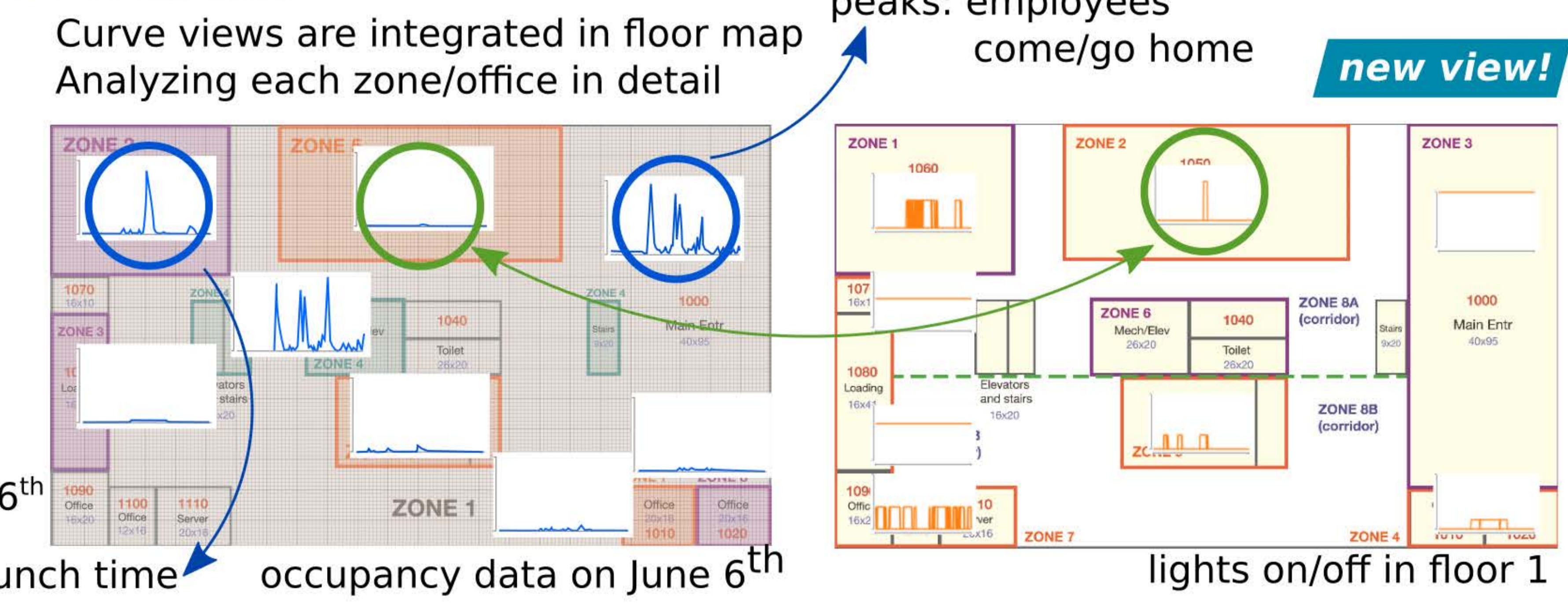
CO₂ CONCENTRATION of server room



DAILY ROUTINE of employees in detail analysis of each person



OCCUPANCY of the rooms



SUMMARY

Building data management
 Input data is transformed to:
 . User-centric data
 . Building data
 . Occupancy data

Visualizations
 . Multiple coordinate views
 . Several standard views
 . And the new **occupancy view**

REFERENCES

[1] K. Matkovic, W. Freiler, D. Gračanin, and H. Hauser: ComVis: A Coordinated Multiple Views System for Prototyping New Vis. Technology. In Proceedings of the 12th International Conference on Information Visualisation, pages 215-220, 9-11 July 2008.

[2] L. Cibulski, D. Gračanin, A. Diehl, R. Splechna, M. Elshehaly, C. Delrieux, and K. Matkovic: ITEA—Interactive Trajectories and Events Analysis: exploring sequences of spatio-temporal events in movement data. The Visual Computer, pages 1-11, 2016.

[3] Z. Konyha, K. Matkovic, D. Gračanin, M. Jelovic, and H. Hauser: Interactive Visual Analysis of Families of Function Graphs. IEEE TVCG, 12(6):1373-1385, Nov./Dec. 2006.



and www.vrvis.at