# TOWARDS ACTIVE CATEGORIZATION

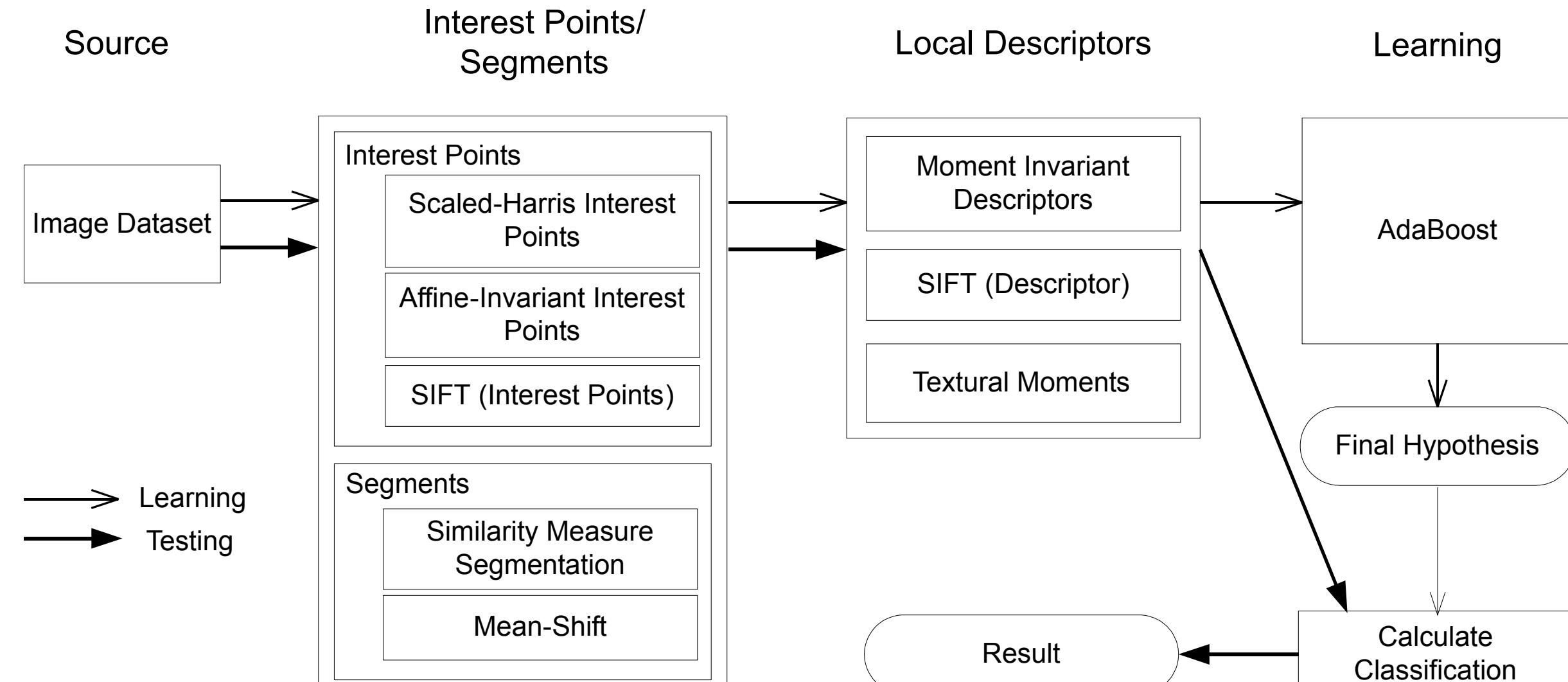## Axel Pinz

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**http://www.emt.tugraz.at/~tracking**

## Object Recognition and Categorization





bike(s)

person(s)

negative

Complex image database

| | Segmentation | Interest Points | Others |
|---|---|---|---|
| Airplanes | 91.7 (SM) | 88.9 (Mom.Inv.) | 90.2 (Fergus et al. CVPR 2003) |
| Faces | 98.2 (SM) | 93.5 (Mom.Inv.) | 96.4 (Fergus et al. CVPR 2003) |
| Cars(Rear) | 96.5 (SM) | 92.1 (Mom.Inv.) | 90.3 (Fergus et al. CVPR 2003) |
| Bikes | 85 (SM) | 86.5 (SIFT) | X |
| Persons | X | 80.8 (SIFT) | X |

Results (ROC equal error rate)



Hypotheses localization

\+ Boosting gets good results on difficult dataset
\+ Simple similarity measure outperforms interest point

## Active Vision "On the Chip"







3D ball motion tracking
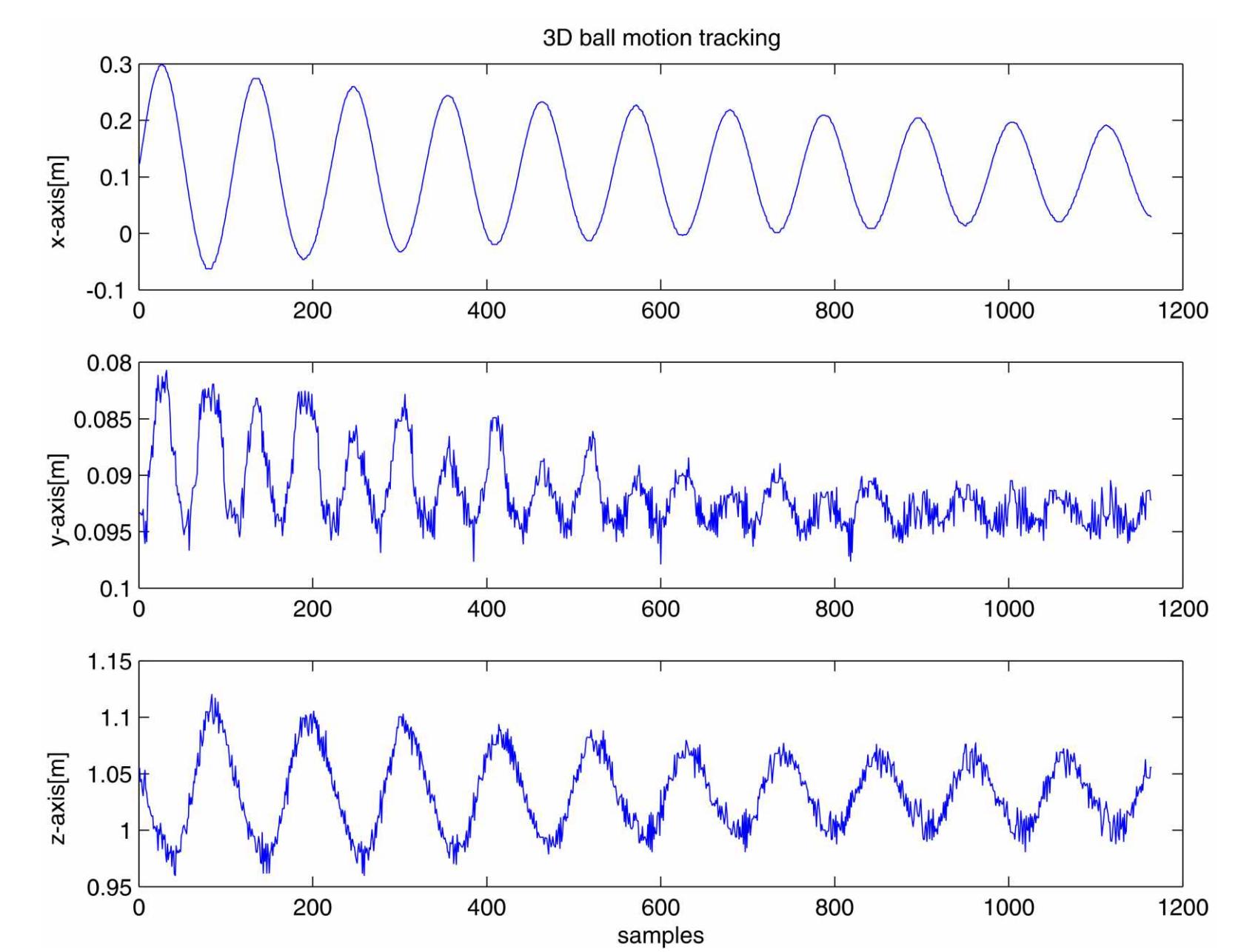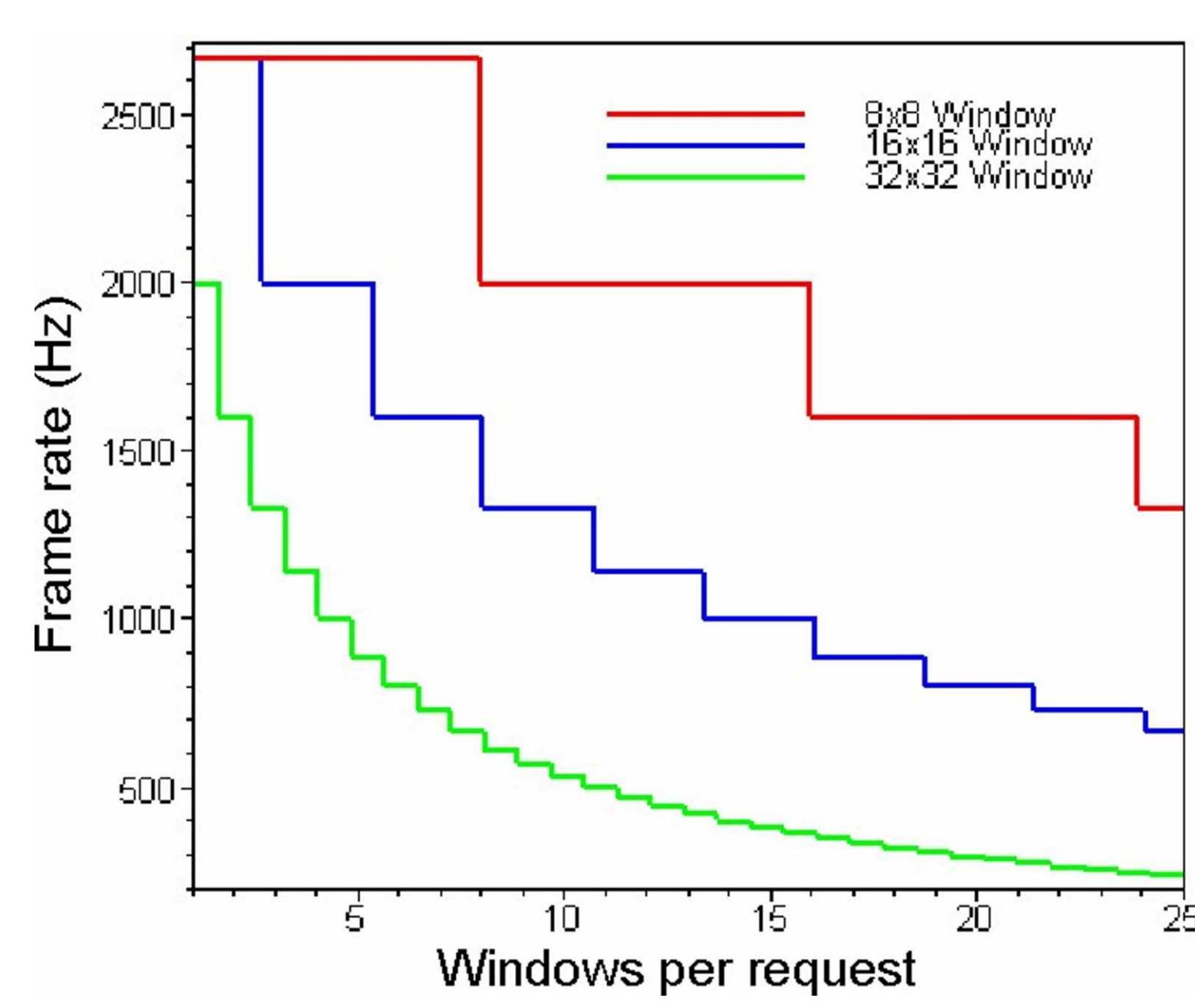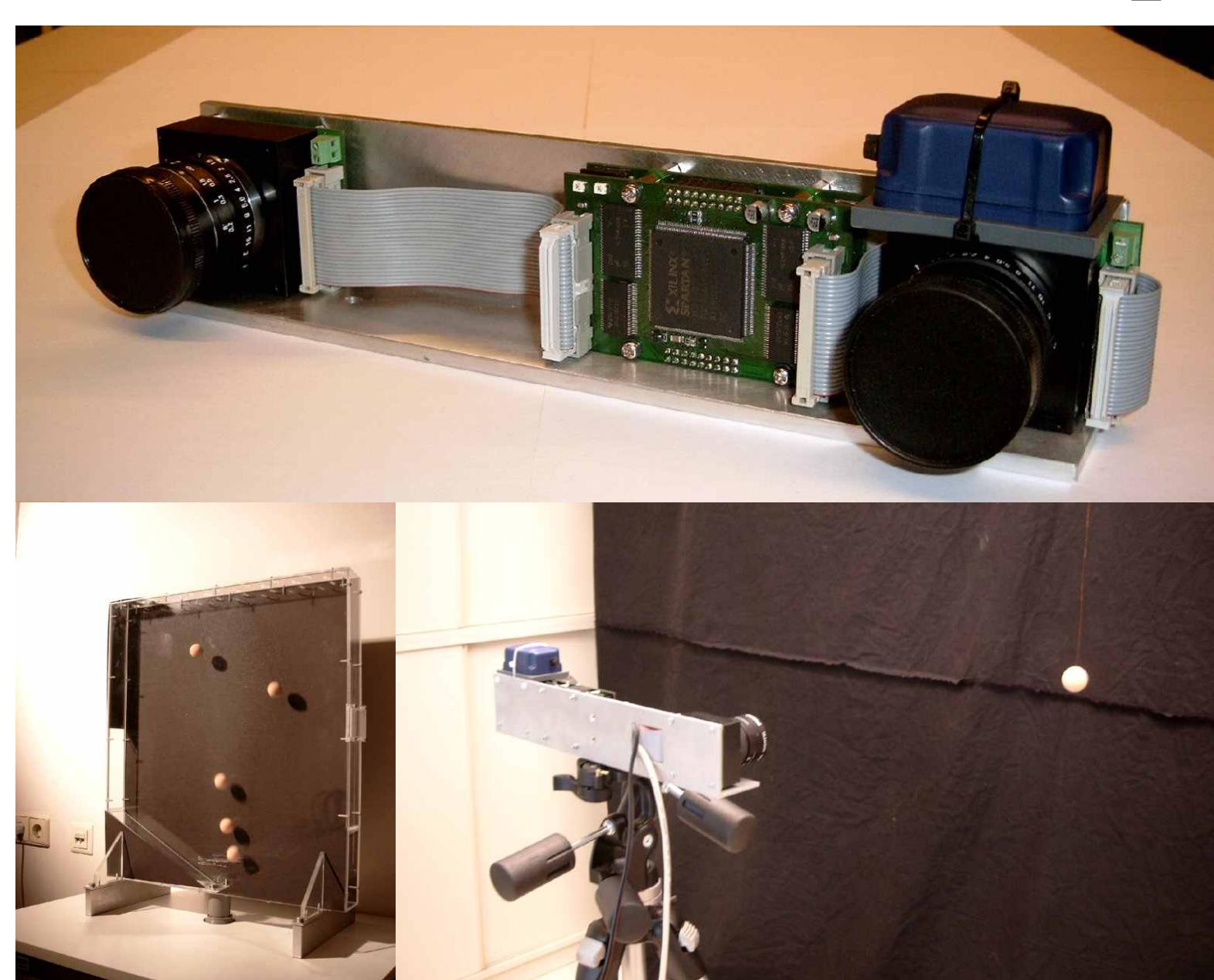
\+ A new, versatile sensor for high-speed real-time tracking, etc.

## Spatio-Temporal Analysis



Clustered 2D Features



Landmark
Landmark
Active Camera Positions
Landmark
Landmark





scene coordinate system

head coordinate system

R, t

3D cursor
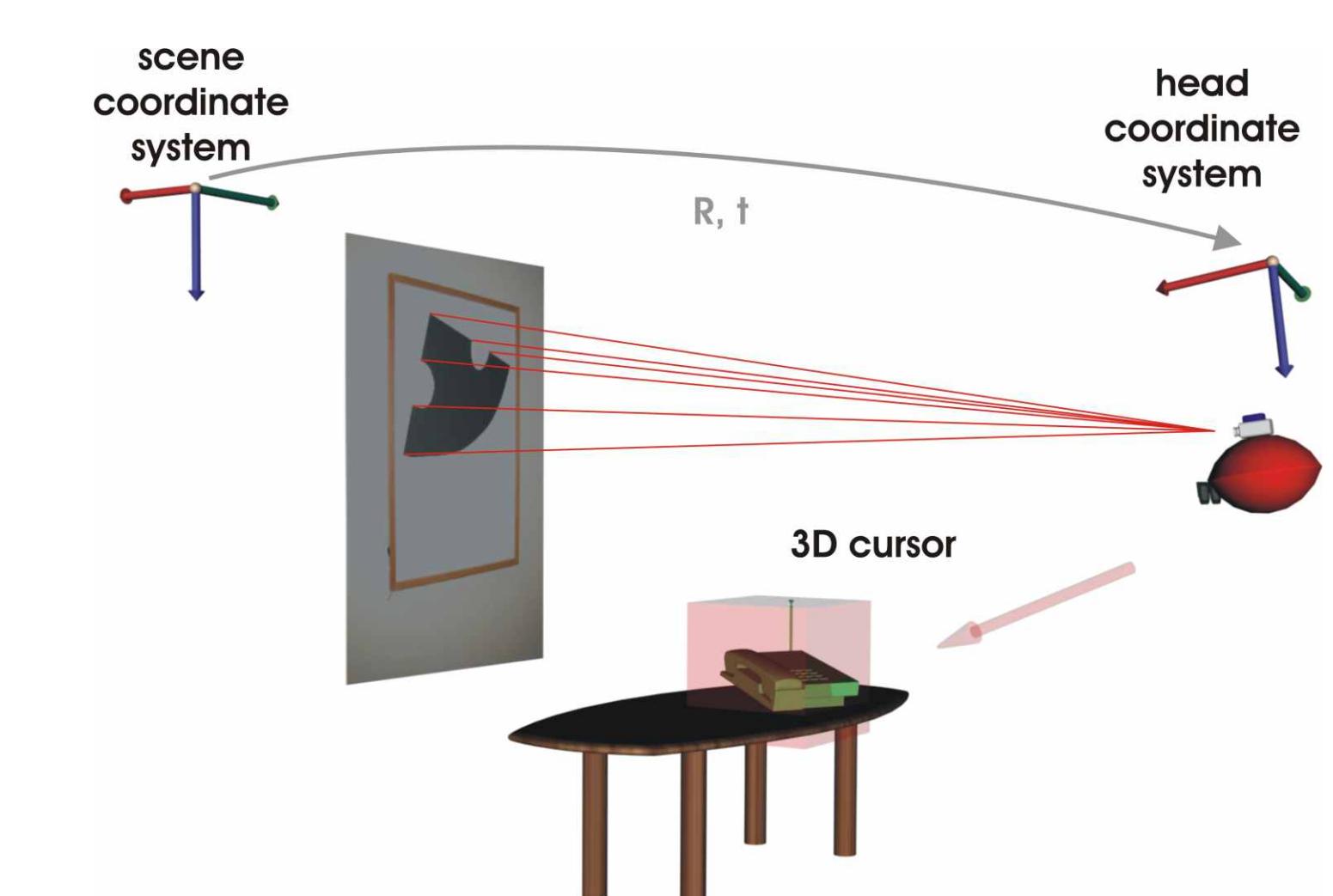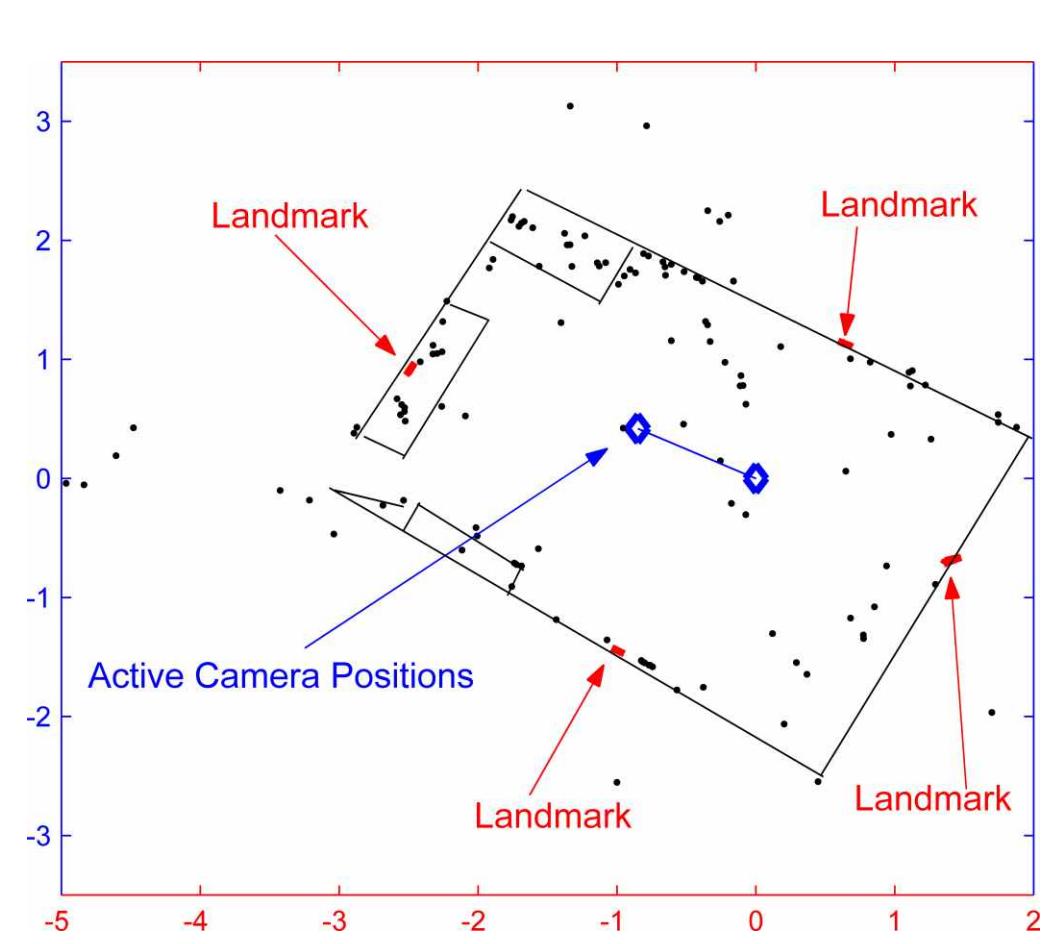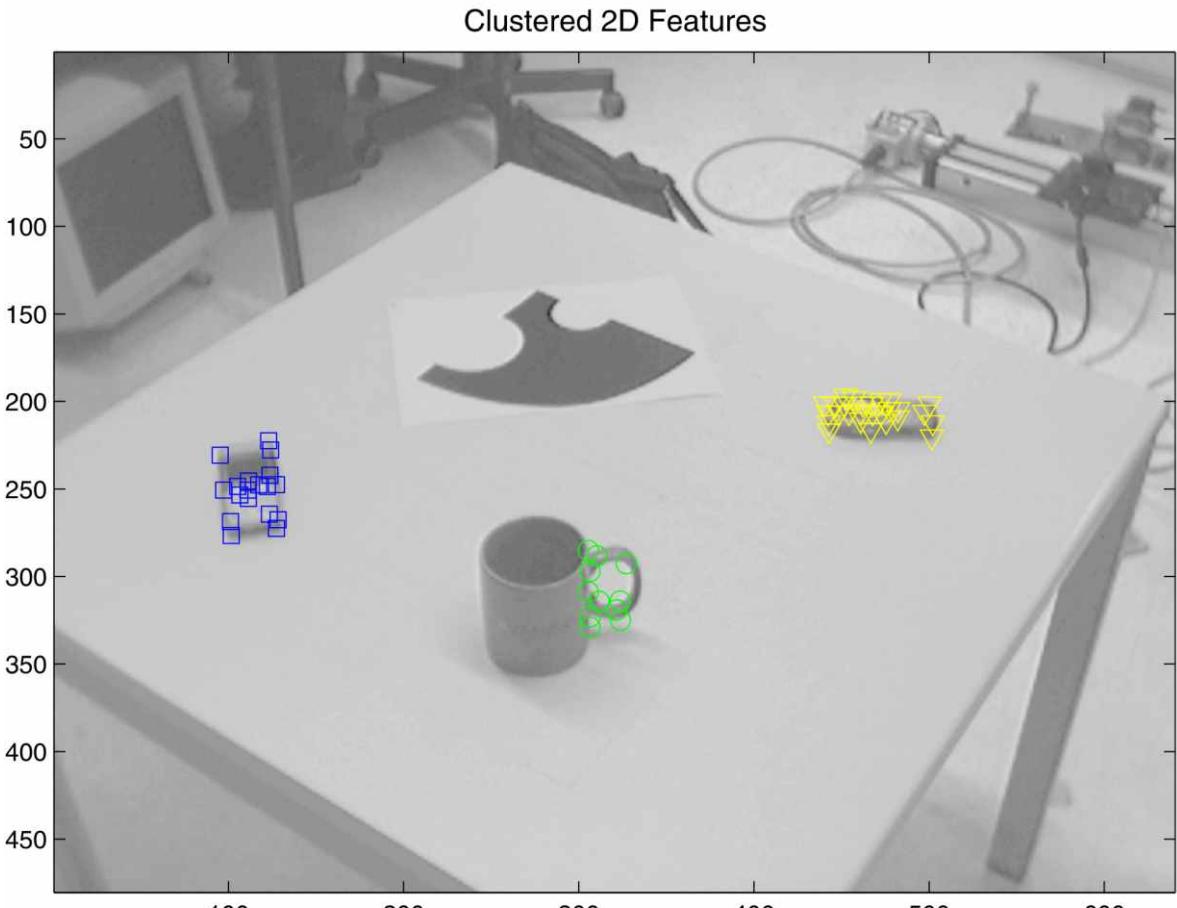
\+ Ongoing research, towards on-line spatio-temporal reasoning

L-A-V-A . org
Learning for Adaptable Visual Assistants

VAMPIRE

Contributions : Peter Auer - Michael Fussenegger - Markus Lambrecht - Ulrich Mühlmann - Andreas Opelt - Gerald Schweighofer - Hannes Siegl - Christoph Stock