Stellingen

behorende bij het proefschrift

Probabilistische methoden voor subcellulaire bewegingsanalyse

Ihor Smal, februari 2009.

1. Compared to unsupervised object detection methods, machine learning approaches are capable of better object versus background discrimination (*Chapter 2 of this thesis*).

2. Mimicking the way how humans perform tracking using Bayesian estimation greatly improves the accuracy of automatic tracking (*Chapter 3 of this thesis*).

3. More accurate and robust tracking of subcellular structures requires employment of multiple dynamics models simultaneously (*Chapter 4 of this thesis*).

4. Temporal oversampling during image acquisition without proper adjustment to object dynamics in some cases complicates automatic tracking and requires multiscale approaches for motion analysis (*Chapter 5 of this thesis*).

5. Spatiotemporal representation of nD+t image sequences as $(n+1)$D images eases the multiscale analysis of dynamical processes (*Chapter 5 of this thesis*).

6. Anyone who considers arithmetical methods of producing random digits is, of course, in a state of sin (*John von Neumann*).

7. The opposite of a correct statement is a false statement. The opposite of a profound truth may well be another profound truth (*Niels Bohr*).

8. Doing research in a medical center does not automatically improve ones own health.

9. Progress imposes not only new possibilities for the future but new restrictions (*Norbert Wiener*).

10. All exact science is dominated by the idea of approximation (*Bertrand Russell*).

11. There is a difference between knowing the path and walking the path (*Morpheus*).