

# Stellingen

behorende bij het proefschrift

## Methoden voor geautomatiseerde beeldanalyse van neuronen

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1. Junctions and terminations of the neuron tree image can both be extracted by the same nonlinear decision (*Chapter 2 of this thesis*).
2. Bayesian multi-object tracking helps separating closely running neuron fibers (*Chapter 3 of this thesis*).
3. Tracing image structures repeatedly and in a statistically independent way yields more evidence about the underlying neuron branches and leads to better reconstructions (*Chapter 4 of this thesis*).
4. Synthetic neuron images represent useful alternatives to the real imagery for objective evaluation of neuron reconstruction algorithms (*Chapter 4 of this thesis*).
5. Scan time and analysis of the neuron culture in high throughput high resolution screening can be drastically reduced by using machine learning approaches (*Chapter 5 of this thesis*).
6. Obtaining manual annotation is inevitably subject to a degree of subjectivity which implies the evaluations are, also, never absolutely accurate.
7. Computer algorithms are irreplaceable tools for processing the ever growing volume of neuronal image data.
8. Neuron digital reconstruction should ideally involve both local and global image processing.
9. “Neuronal curse of dimensionality”: neuron reconstruction algorithms should be designed right from the start to be able to deal with ever increasing data volumes.
10. Any man could, if he were so inclined, be the sculptor of his own brain (*Santiago Ramón y Cajal, Advice for a Young Investigator, 1897*).
11. The plan is O.K. Only that, for some reason, the events do not stick to it (*Borislav Pekić, Rabies, 1983*).