



- Baylor College of Medicine, Caltech, Columbia Univ., Univ. of Tuebingen/MPI
- Lead Investigator: Andreas Tolias (experimentalist)
- Current Team Members
  - Matthias Bethge (machine learning)
  - Liam Paninski (statistical analysis)
  - Michael Roukes (experimentalist)
  - Thanos Siapas (experimentalist)



## Research interests

- Function and Structure of neocortical microcircuits with cell-type specific information
- Development of next generation neural networks inspired by biological algorithmic principles
- Development of statistical tools to analyze complex dynamic high dimensional neural data



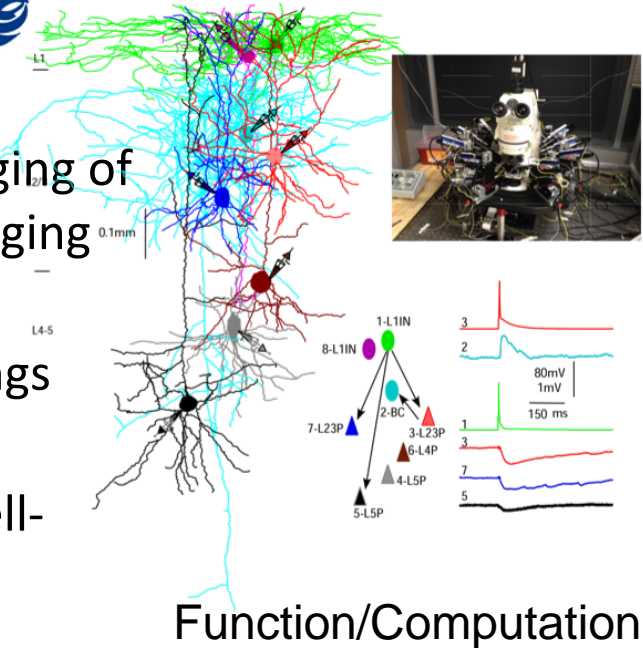
## Connectivity

### Experimental expertise

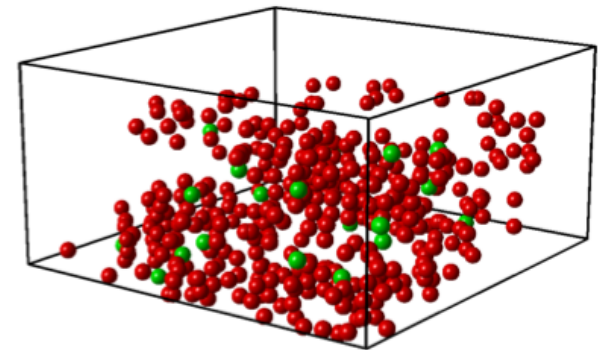
- high speed in vivo volumetric functional imaging of cortical circuits with 2-photon functional imaging using acousto-optic deflectors (Tolias)
- High density 3D electrophysiological recordings (Siapas, Roukes, Tolias)
- connectivity using multi-cell patching with cell-types specificity and connectivity strength/plasticity rules (Tolias, Siapas)
- Visual system/Computation Rodent and Primate neocortex (Bethge, Tolias, Siapas)

### Theoretical expertise

- Statistical methods for complex high dimensional data analysis (Paninski, Bethge)



## Function/Computation





## **Type of research group we seek to join**

- Machine learning groups expertise: deep neural networks, generative models, feedback
- Connectomics using 3D electron microscopy



# Contact Information

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