



Neurotheory Forum

Neuroscience Talk Henning Sprekeler

Henning Sprekeler
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Host: Tim Vogels

Inhibitory interneurons come in different classes and form intricate circuits. While our knowledge of these circuits has advanced substantially over the last decades, it is not fully understood how the structure of these circuits relates to their function. I will present some of our recent attempts to “understand” the structure of interneuron circuits by means of computational modeling. Surprisingly (at least for us), we found that prominent features of inhibitory circuitry can be accounted for by an optimisation for excitation-inhibition (E/I) balance. In particular, we find that such an optimisation generates networks that resemble mouse V1 in terms of the structure of synaptic efficacies between principal cells and parvalbumin-positive interneurons. Moreover, an optimisation for E/I balance across neuronal compartments promotes a functional diversification of interneurons into two classes that resemble parvalbumin and somatostatin-positive interneurons. Time permitting, I may briefly touch on recent work in which we link E/I balance to prediction error coding in V1. (Henning Sprekeler for Owen Mackwood, Laura Bella Naumann, Joram Keijser & Loreen Hertäg)

Friday, September 25, 2020 03:00pm - 04:00pm

Online



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