Spiking Retina and Brainstorming

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First Spiking Retina Task

• Drum Stick Rebound Task
  – Determine the exact time of drum stick hit
  – Input
    • Dynamic Vision Sensor 128 „Spiking Retina“
    • Sparse coding with ON/OFF events signalling local log intensity changes
Drum Stick Rebound Task

- **Heuristic Solution**
  - Binning of event data, $dt = 1e^{-3}$s
  - Event rate of bin $r(n)$
  - Average vertical position of bin events $y_{avg}$
  - Timeseries $y$ convoluted with even rectangular function
    $$(\pm \Delta n = 30e^{-3}s / dt = 30 \text{ steps}) \quad y_{avg}$$
  - Find intervals $I = (n_0, n_1)$ in timeseries, where $y_{avg}$ is less or equal $y_{thres} = 75$
  - For each interval, $t_{hit}$ is the time point of minimum event rate $r$ within $I$ (stick velocity is near zero at hit time)
  - Excluding non-stroke parts of the video, $\text{var}(y_{avg})$ should be low before hit
    $$\text{var}(y_{avg})(n_0) < y_{\text{var thres}} = 50$$
Drum Stick Rebound Task

- $r(t)$
- $\gamma_{\text{avg}}(t)$
- $\gamma_{\text{navg}}(t)$
- $I(t)$
- $i_{\text{hit}}(t)$
Brainstorming (optional)
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- Coherence domains
- Coherent oscillations in brain LFP mm range
- Bucket paper
- LSM
- Water
- Healing
- Information in Water
- Clarity Mind Coherence
- Fruits
- Multiagent Systems Coherence with External World
- Dream
- Dream with most meaning to all minds is the clearest
- Could be made reproducible
- Masaru Emoto Intention to water
- Healing Water
- Granda Water
References


• Role of the electromagnetic field in the formation of domains in the process of symmetry-breaking phase transitions Emilio Del Guidice and Giuseppe Vitiello, Phys. Rev. A 74, 022105 (2006)