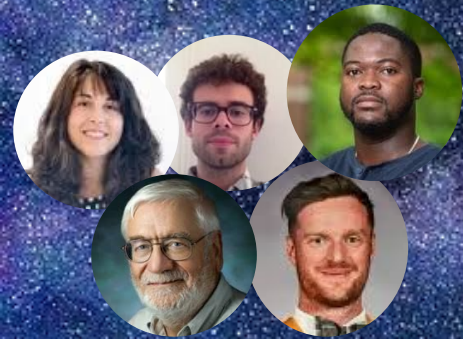


What's catching your eye?

#spa-attention



Akwasi Akwaboah

Ernst Niebur

Joubert Damien

Paul Kirkland

Giulia D'Angelo

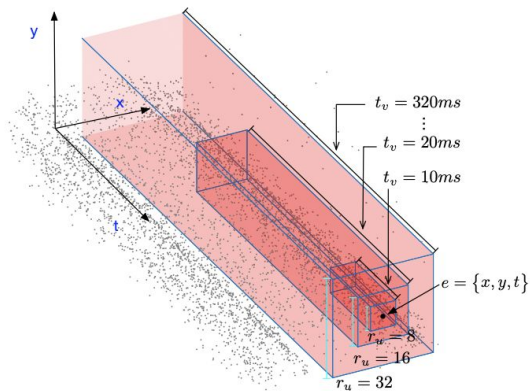
An event-based implementation of saliency-based visual attention for rapid scene analysis

Camille Simon Chane¹, Ernst Niebur², Ryad Benosman³, Sio-Hoi Ieng³

¹ETIS UMR 8051, CY Cergy Paris University, ENSEA, CNRS

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$$S_{u,v}(x, y, t) = \sum_i \frac{\mathbb{1}_\sigma(x_i, y_i, t_i)}{(1 + 2r_v)}$$

$$\sigma = \{e_i \mid |x - x_i| + |y - y_i| \leq r_u \text{ and } t - t_i \leq t_u\}$$

$$\mathbb{1}_\sigma = \begin{cases} 1 & \text{if } (x_i, y_i, t_i) \in \sigma \geq 0, \\ 0 & \text{otherwise} \end{cases}$$

$$r_v \in \{2^v\}_{0 \leq v \leq \lambda} \quad t_u \in \{10 \times 2^u\}_{0 \leq u \leq \tau}$$

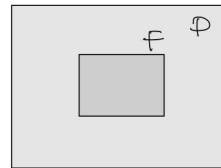
$$S_{ST}(x, y, t) = \frac{1}{S_{T_{max}}} \sum_{u=0}^{\tau} \sum_{v=0}^{\lambda} S_{u,v}(x, y, t)$$

EXPERIMENTS

- o eave Prophesee
- o posture leaving

EARLY DATA

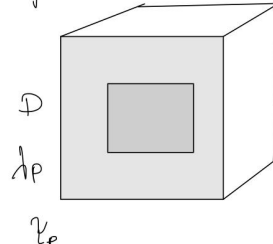
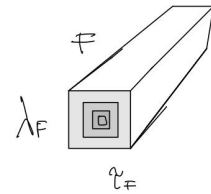
forget about eave
leaving towards you



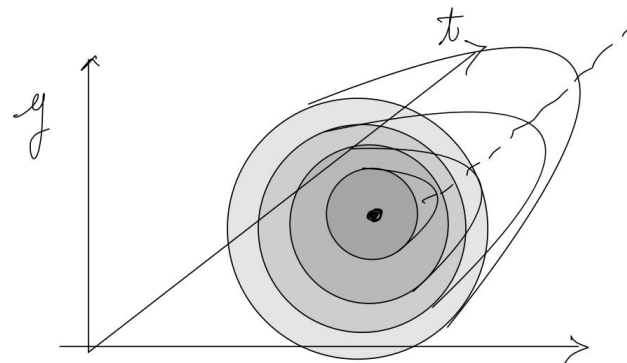
Fovea
Periphery

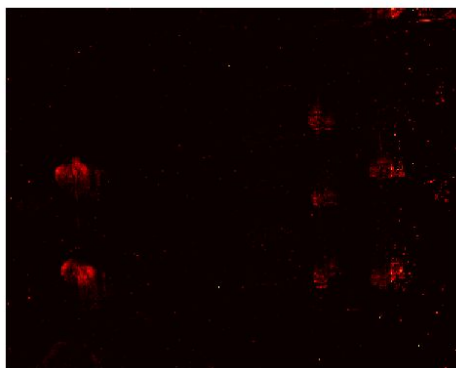
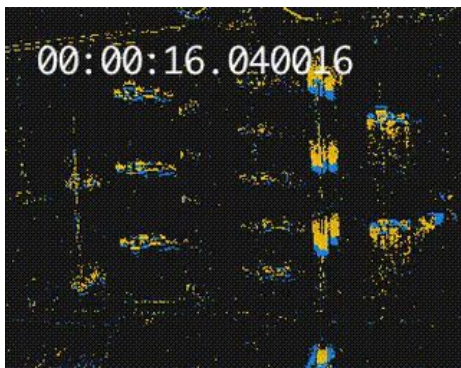
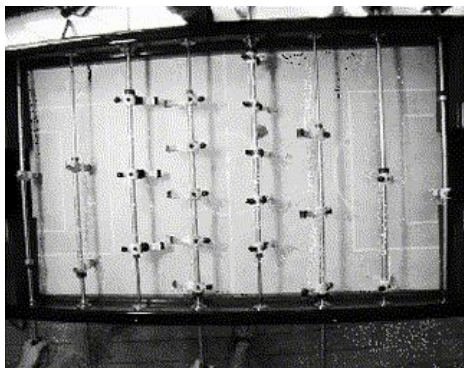
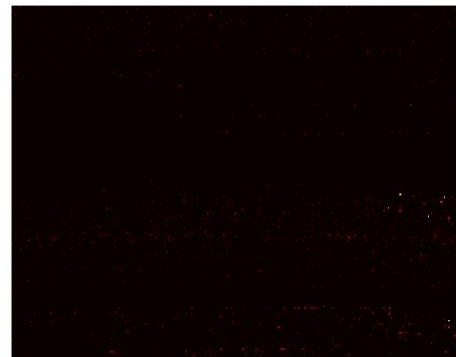
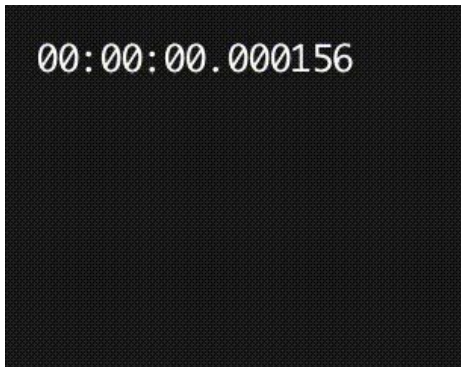
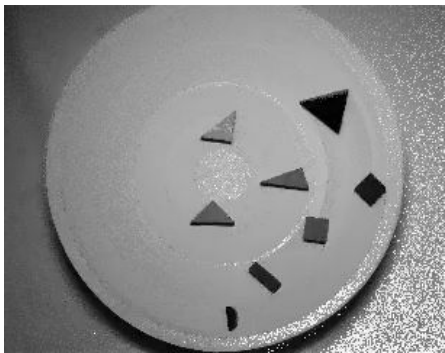
$$\lambda_F > \lambda_P$$

$$\tau_F > \tau_P$$



Functionally salient \rightarrow stop being salient because of adaptation





frames

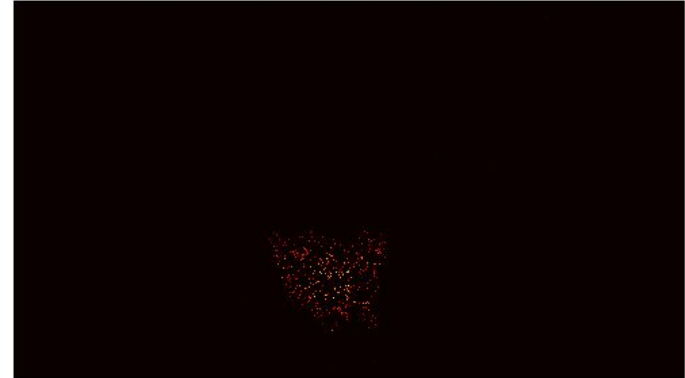
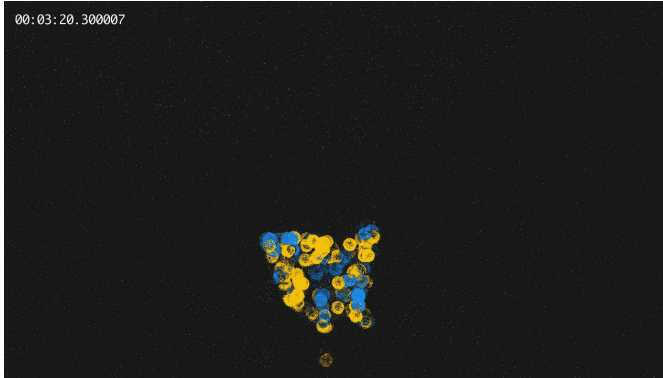
events

saliency

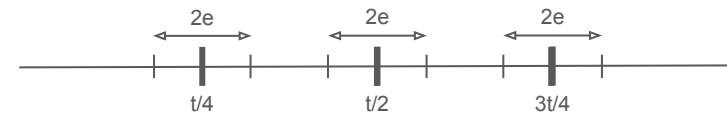
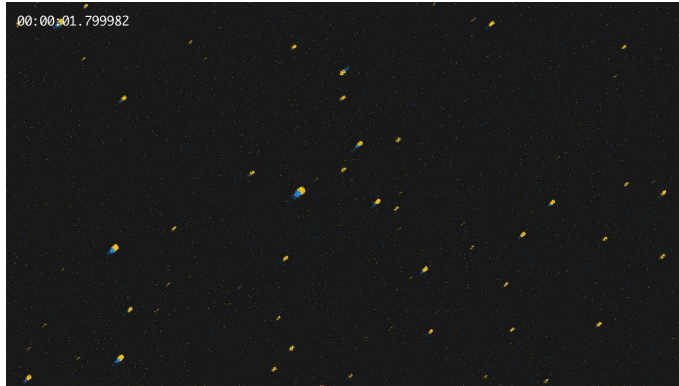
Events

Saliency

Drone show
4th July



Stars
recording



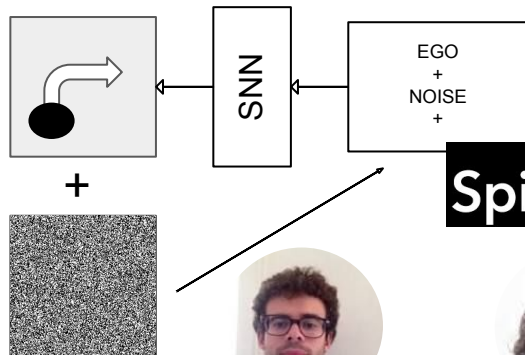
Fifty shades of egomotion

#spa-egomotion





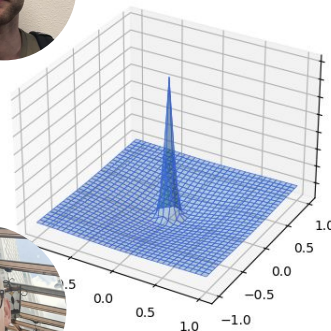
Sebastian Fieldhouse



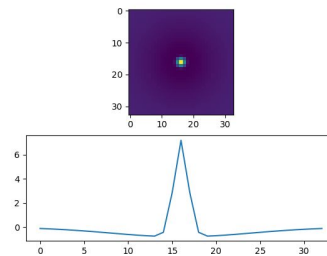
SpiNNcloud



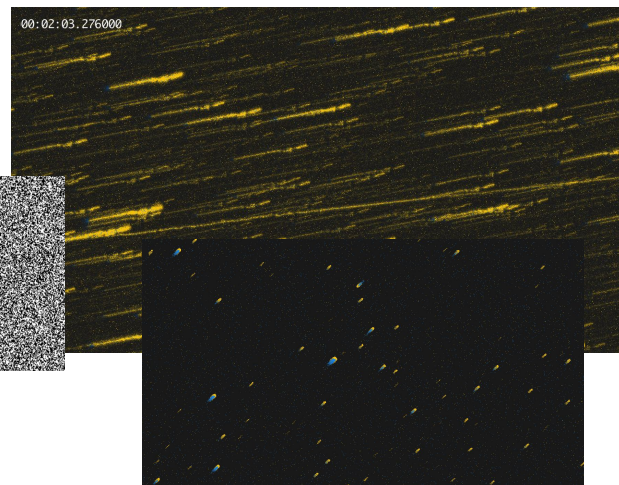
Elias Arnold



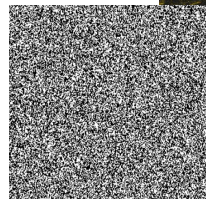
W Norse



Experiments with real data



Characterisation
with ideal stimuli



STDP SCNN

Paul Kirkland



Leo Liu

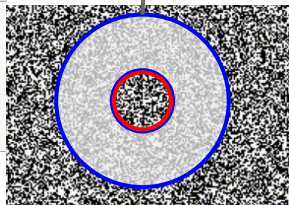
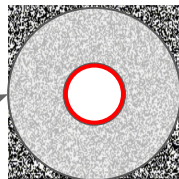
Joubert Damien Giulia D'Angelo

Tim Langer



pixel
A

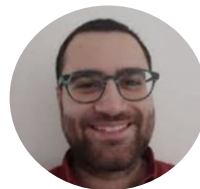
pixel
B





Remote folks....

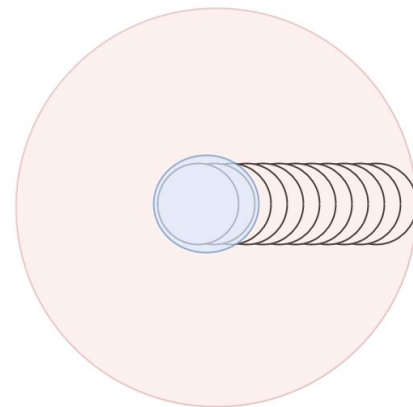
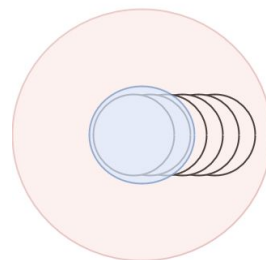
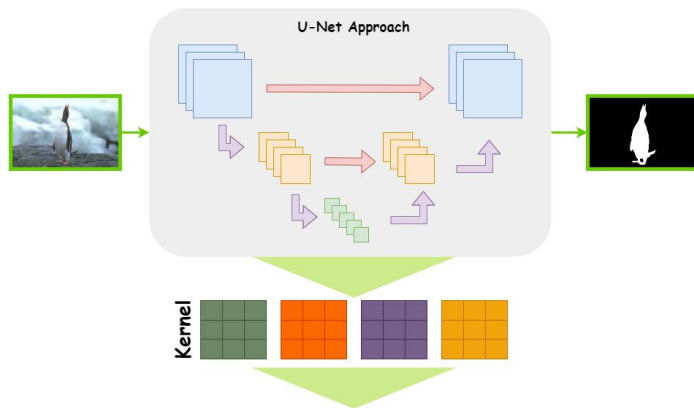
Riccardo Pignari



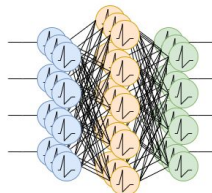
Andrea Pignata

Slower
movement

Faster
movement



Gianvito Urgese



**Politecnico
di Torino**

Thank you

