Advancements in Visual Perception: Event Camera, Micro Expressions, and SNN

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Dataset

dataset progress :

- ~25 persons (someone 2-3 times, with and without glasses, men/women,around 7-8s on 7 facial expressions)

- started to be labelled (~15)

Dataset

- Organisation of the dataset :

📁 blink_eyes	07/05/2024 10:19
📁 contract_jaw	07/05/2024 10:20
📁 frown	07/05/2024 10:17
📁 nose_winkle	07/05/2024 10:18
📁 open_mouth	07/05/2024 10:16
📁 smile	07/05/2024 10:18
📁 trash	07/05/2024 10:15
📁 Upper_lid_raiser	07/05/2024 10:22

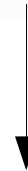|	
📄 open_mouth15.aedat4	05/05/2024 15:21
📄 open_mouth14.aedat4	05/05/2024 15:16
📄 open_mouth13_2(noise).aedat4	05/05/2024 15:12
📄 open_mouth13.aedat4	05/05/2024 15:12
📄 open_mouth12.aedat4	05/05/2024 15:06
📄 open_mouth11.aedat4	05/05/2024 10:59
📄 open_mouth10_2.aedat4	05/05/2024 10:52
📄 open_mouth10.aedat4	05/05/2024 10:52
📄 open_mouth9_3.aedat4	03/05/2024 18:45
📄 open_mouth9_2.aedat4	03/05/2024 18:44

repertories

One folder

Format of the name : Facial_movement(id)_number(noise?).aedat4

SNN

-We used spikingjelly based on pytorch (https://github.com/fangwei123456/spikingjelly)

-Implementation of the model :

```
nn.Sequential(
    nn.Flatten(),
    nn.Linear(28 * 28, 10, bias=False),
    nn.Softmax()
    )
```

```
nn.Sequential(
    layer.Flatten(),
    layer.Linear(28 * 28, 10, bias=False),
    neuron.LIFNode(tau=tau, surrogate_function=surrogate.ATan())
    )
```

Reference : https://spikingjelly.readthedocs.io/zh-cn/0.0.0.0.14/activation_based_en/lif_fc_mnist.html

Next step

- Complet the dataset. Need more 3-5 peoples

-Try to train our dataset with a snn

- optimize the snn to have the best precision