



Završni rad br. 5372

Sustav za prepoznavanje gesti ruku temeljen na podacima s mikrokontrolerske pločice i neuronskoj mreži

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Motivacija

Internet stvari

Pametne kuće

Ekspresivnost ruku

Sadržaj

Uređaj za dohvaćanje podataka

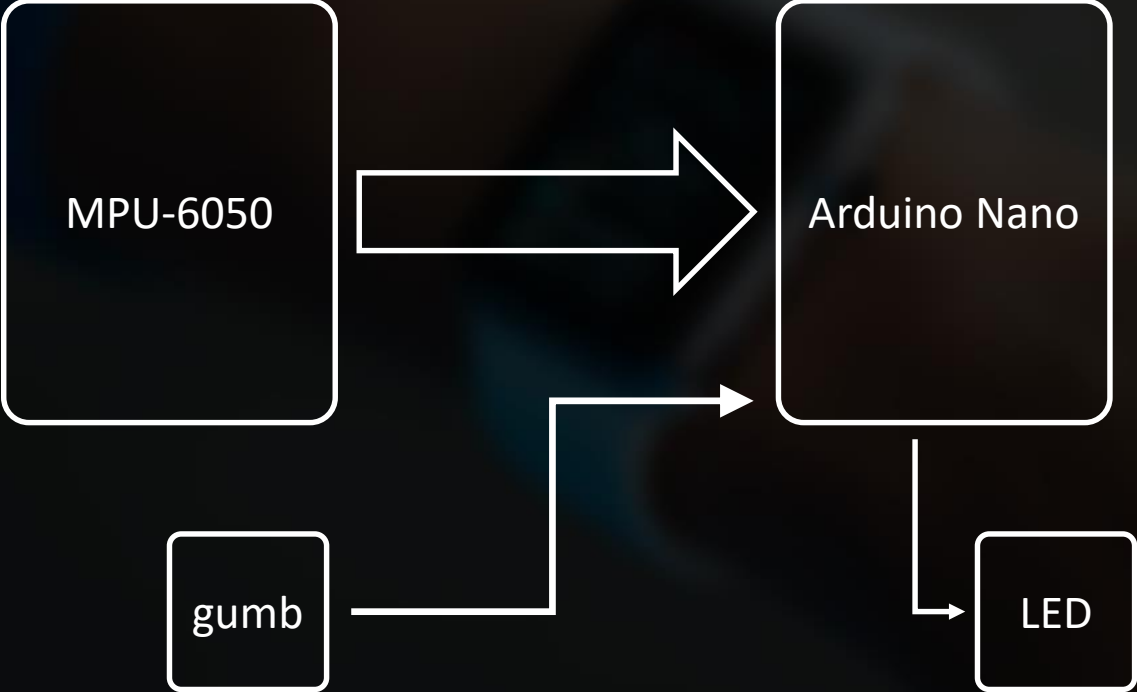
Aplikacija za prikupljanje podataka

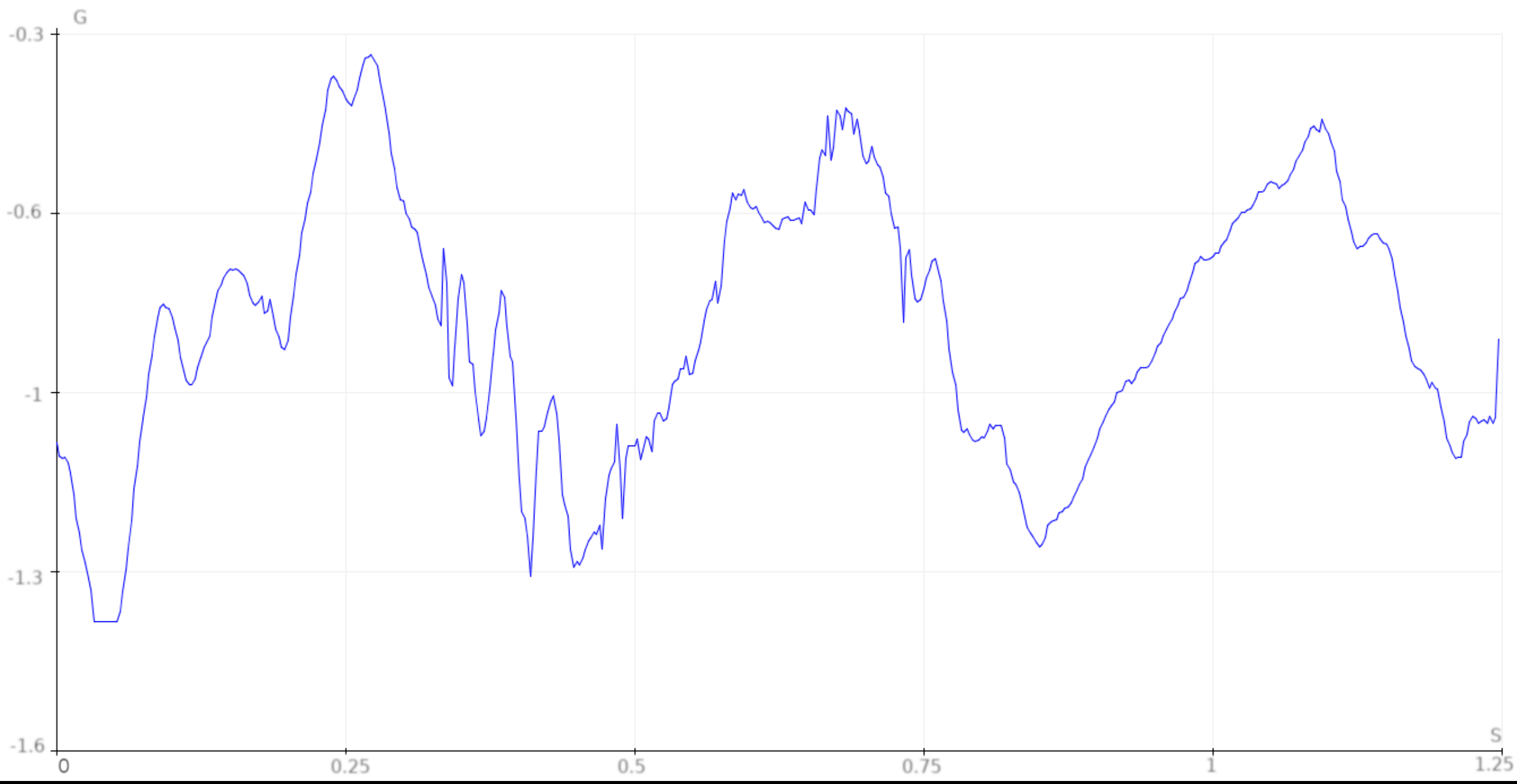
Neuronska mreža

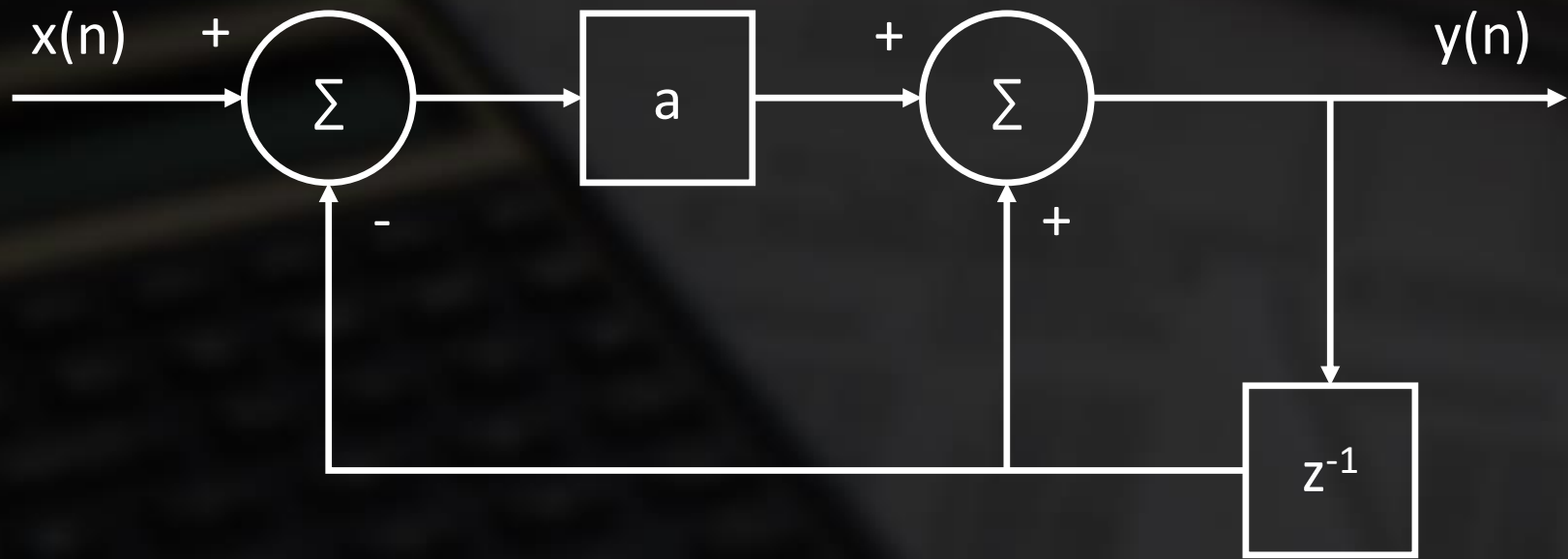
Aplikacija za prepoznavanje u stvarnom vremenu

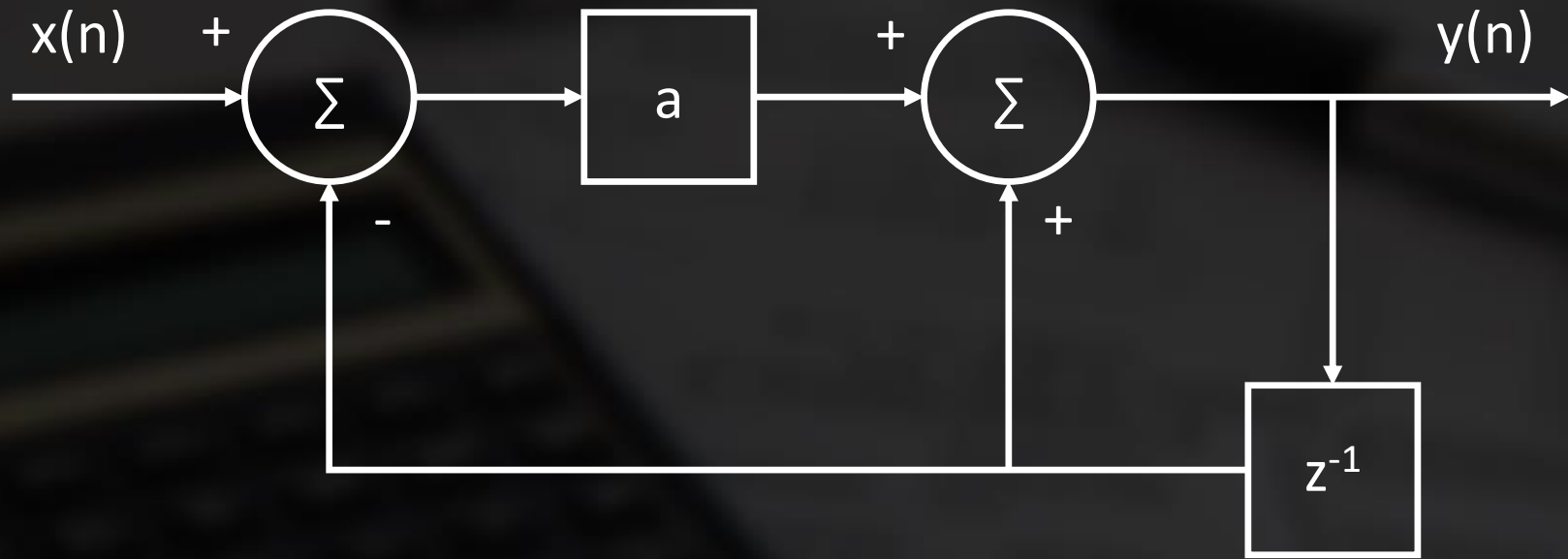


Uređaj za dohvaćanje podataka

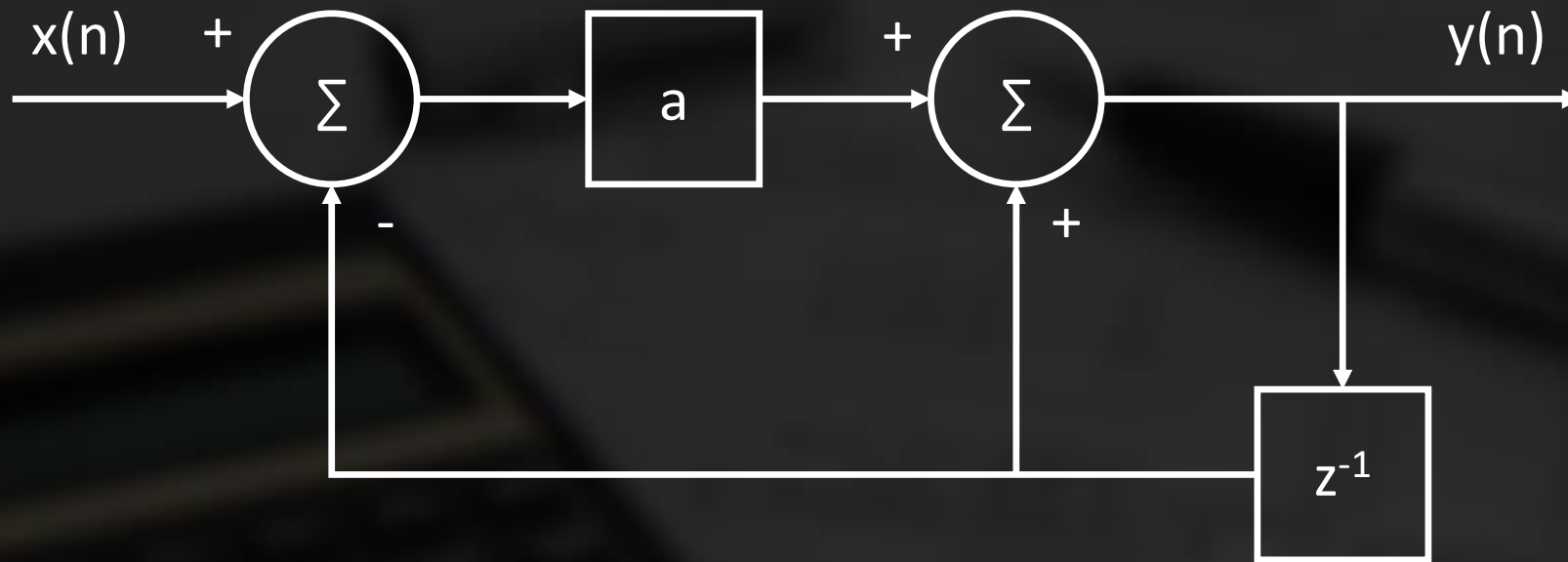








$$y[n] = y[n - 1] + [(x[n] - y[n]) / C]$$

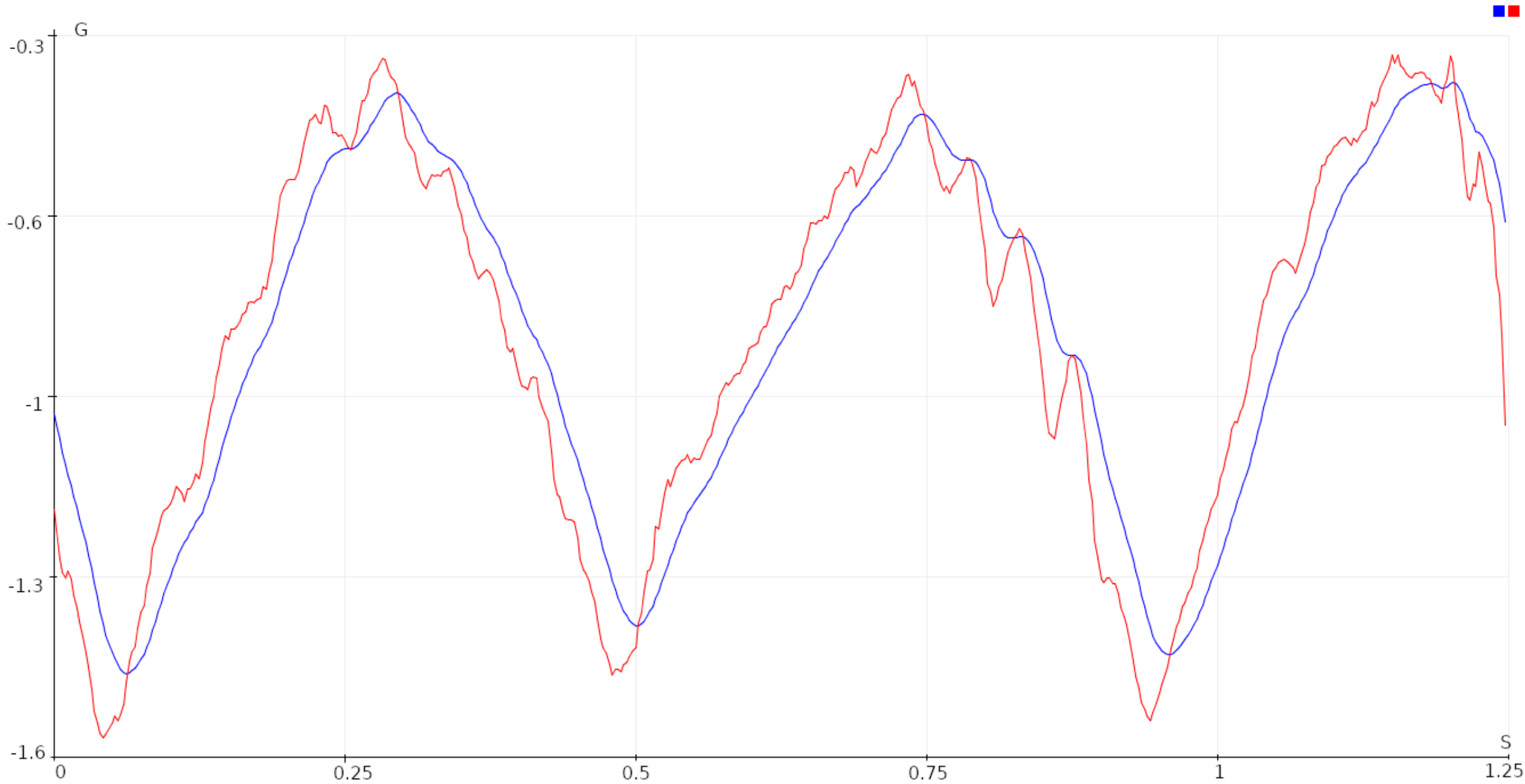


$$y[n] = y[n - 1] + [(x[n] - y[n]) / C]$$

```

Data smoothOut(Data raw) {
    return smoothData.add(raw.sub(smoothData).div(smoothStrength));
}

```



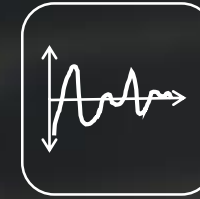
Aplikacija za prikupljanje podataka



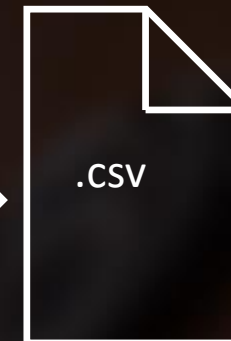
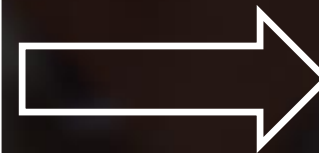
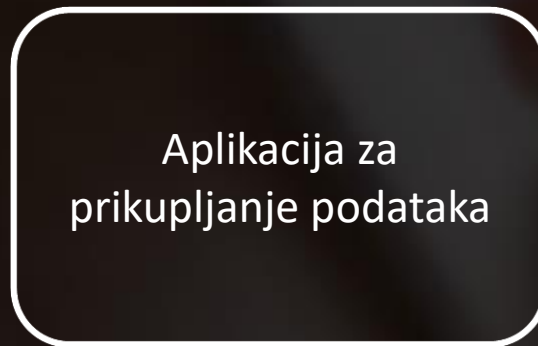
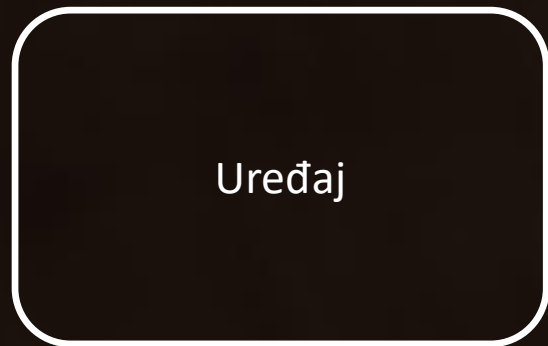
Jezik
Processing



Serijska
komunikacija



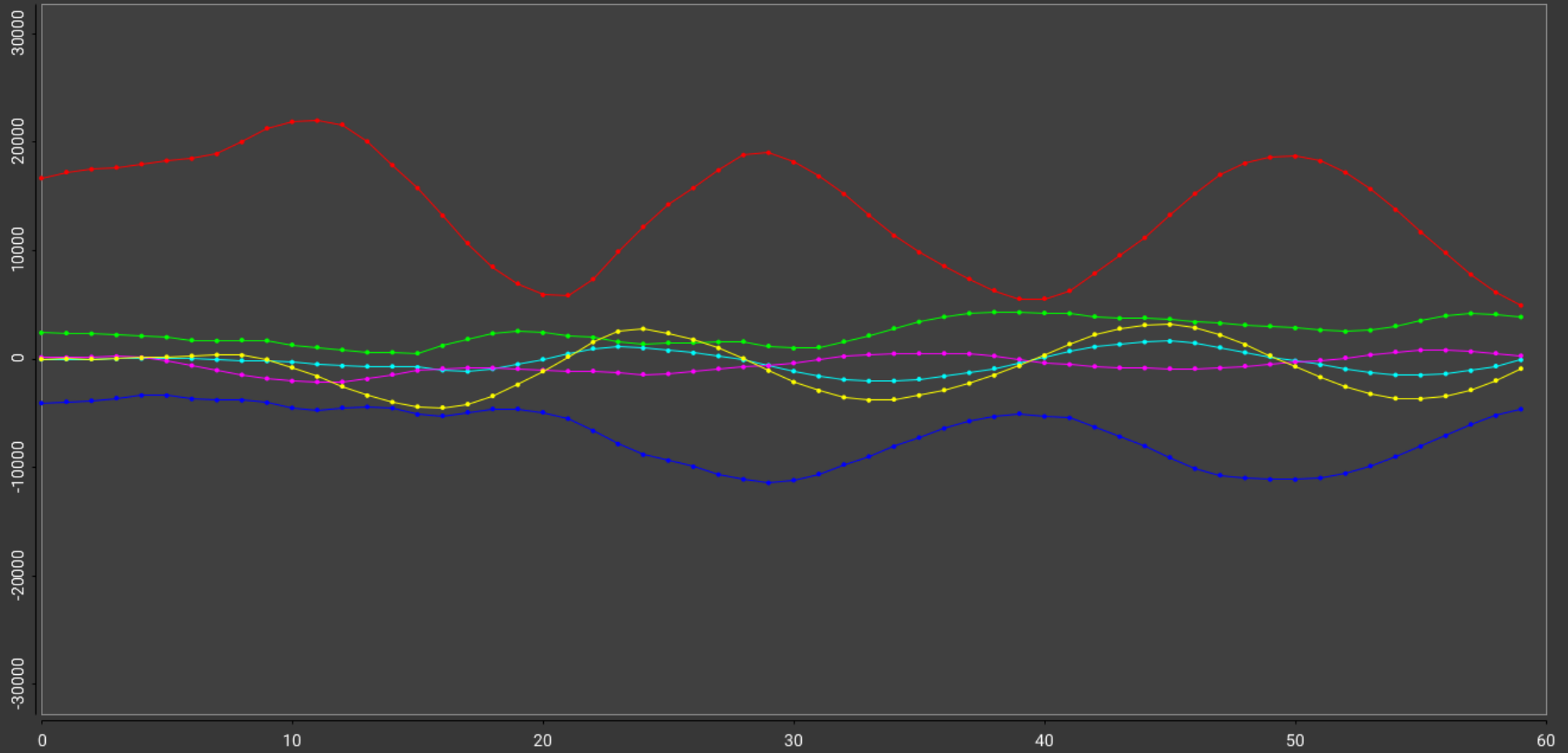
Iscrtavanje u
stvarnom
vremenu

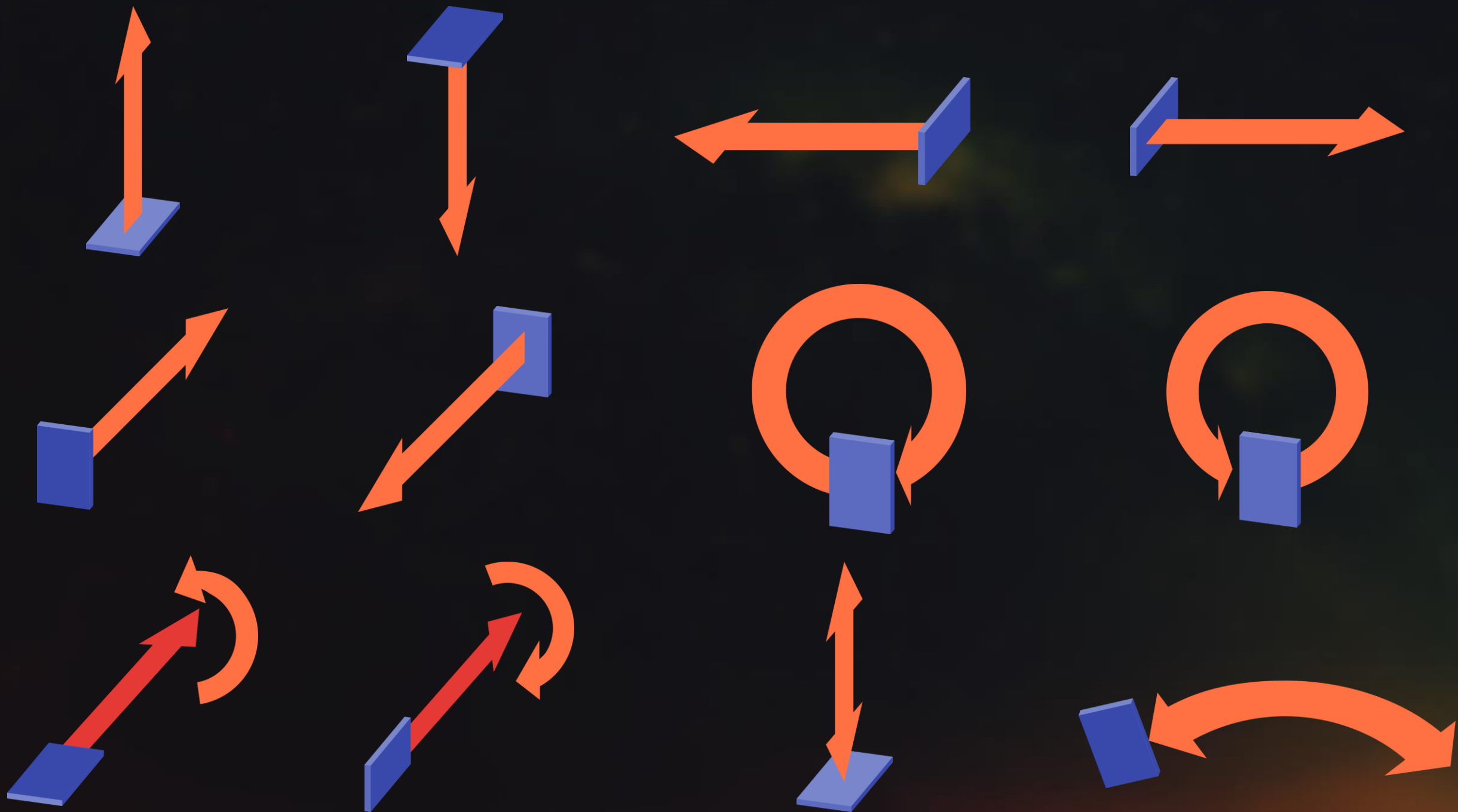


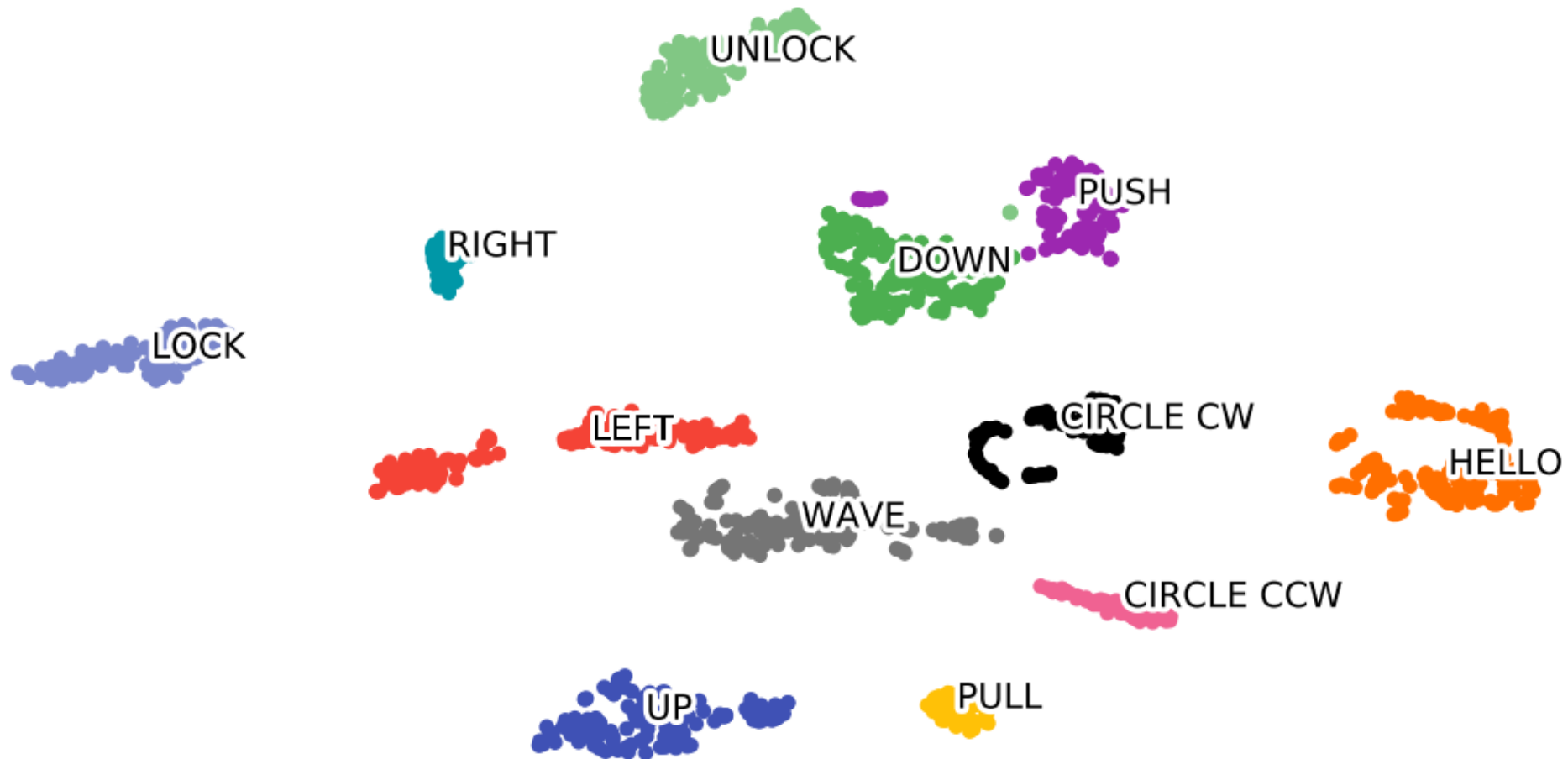
DataCollector

Data read


Newly recorded gesture



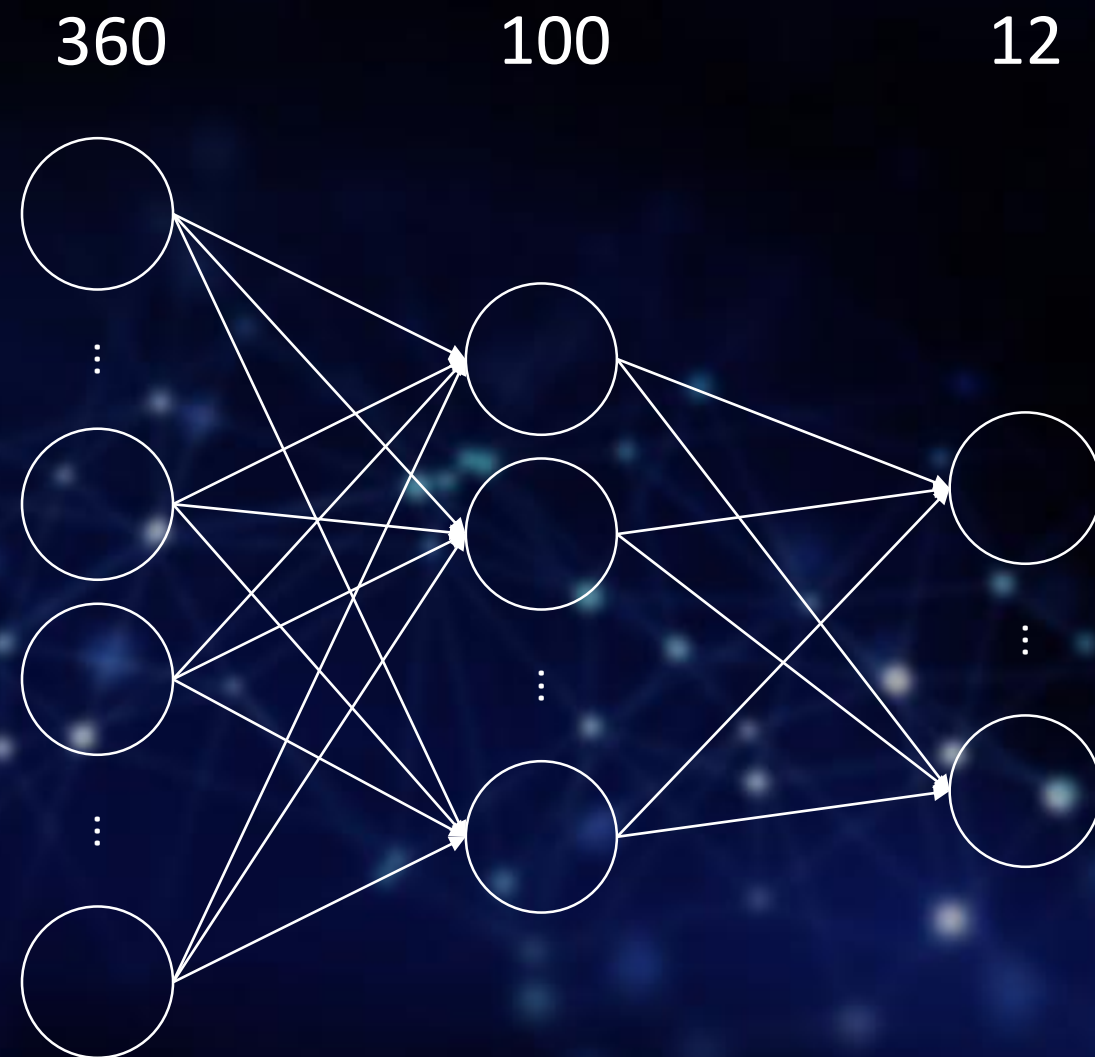


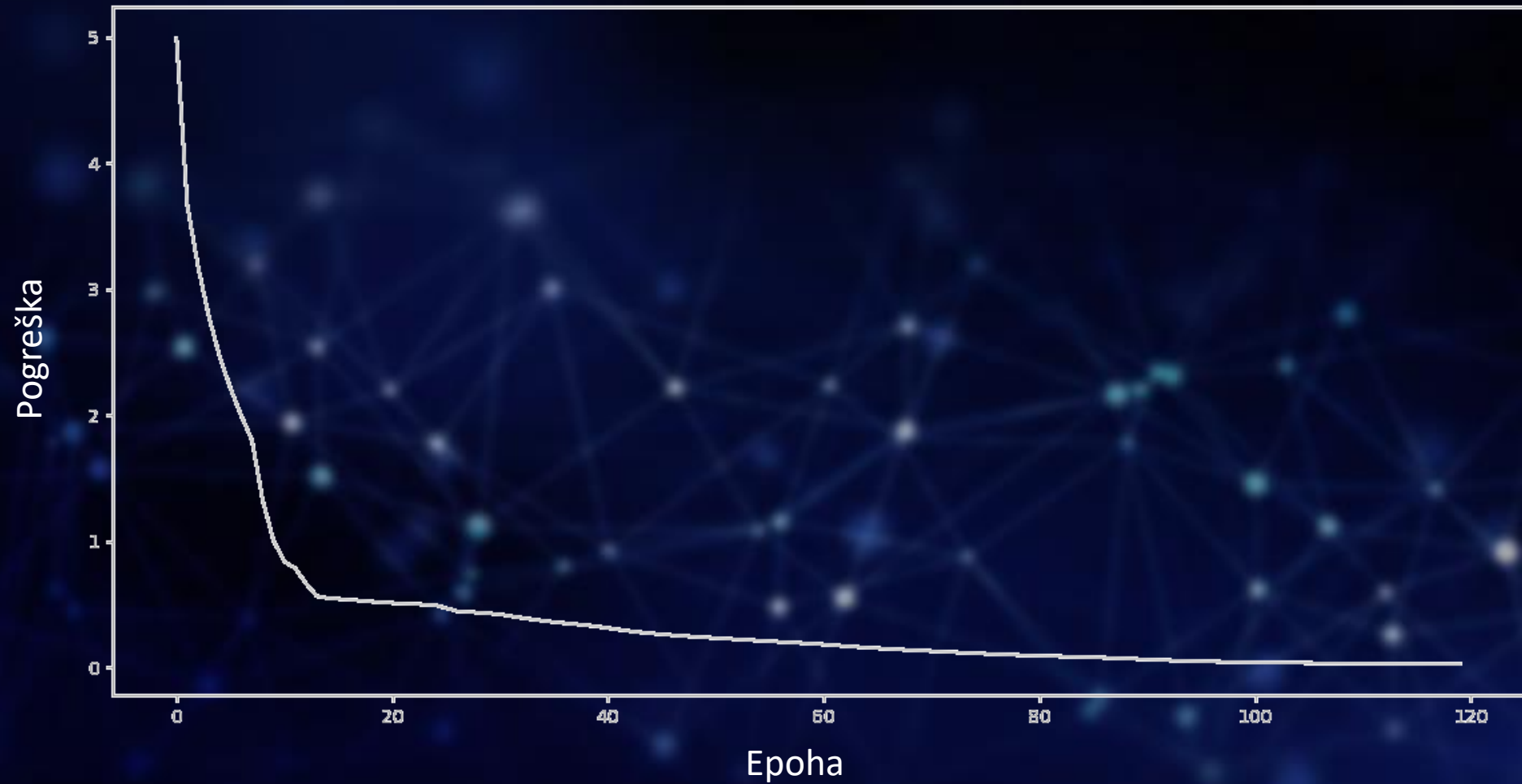


Neuronska mreža

- 
- Unaprijedna arhitektura
 - Gradijentni spust
 - Algoritam propagacije pogreške unatrag

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- Gradijentni spust
- Algoritam propagacije pogreške unatrag





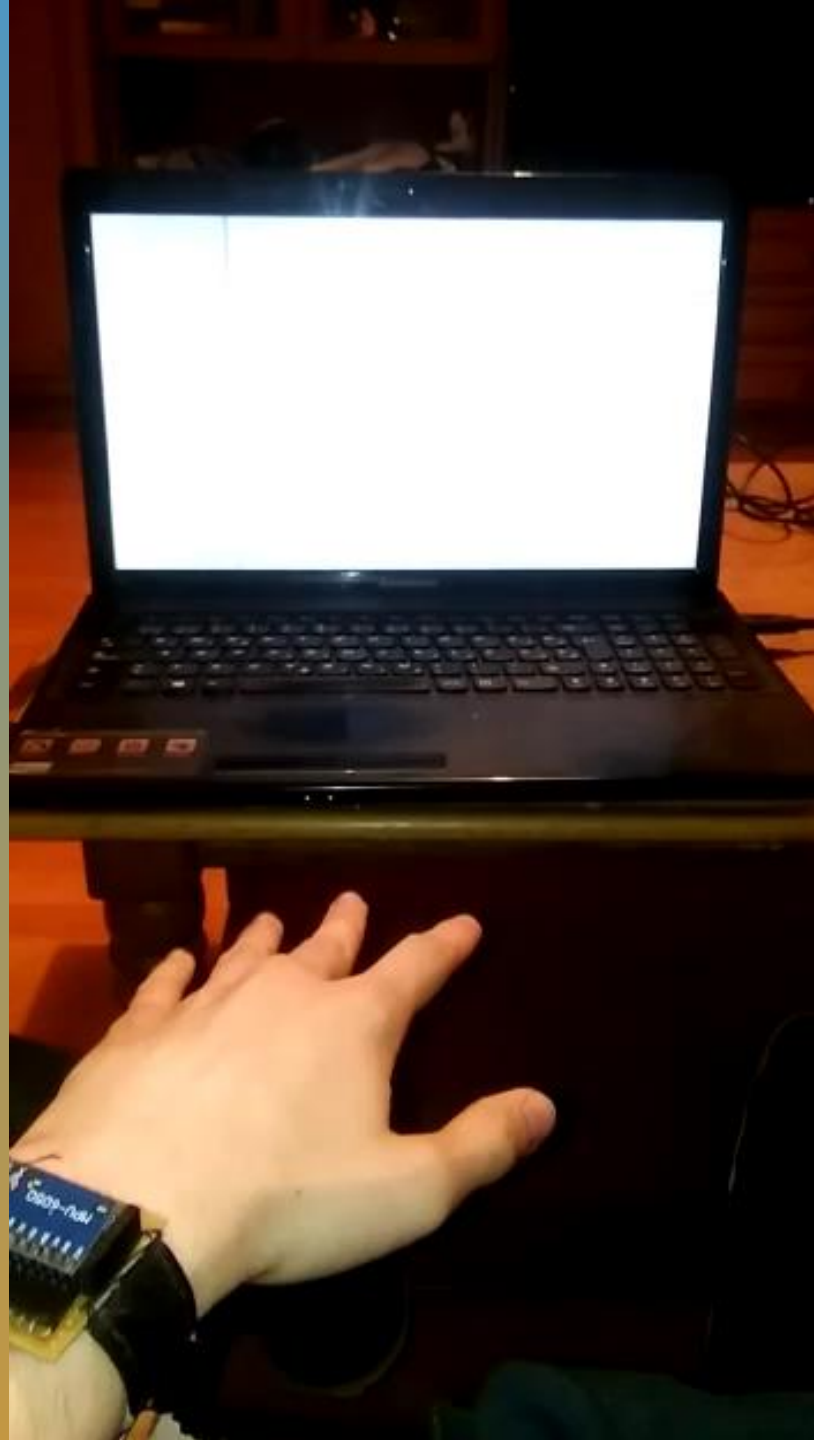
Na ispitnom skupu od 281 primjera točnost je 91.429%



Aplikacija za prepoznavanje u stvarnom vremenu

The background is a dark, blurred photograph of a desk. On the left, there is a stack of papers or a laptop with a light-colored cover. In the center, a wooden desk is visible. On the right, a blue pen lies on a surface, possibly a desk mat or another piece of paper. The overall lighting is dim, creating a professional and focused atmosphere.

Demo



Što dalje?