Temporal Memory Example - Sine Signal

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Configuration

```
Get[ $UserBaseDirectory <> "/TriadicMemory/triadicmemoryC.m"]
Get[ $UserBaseDirectory <> "/TriadicMemory/temporalmemory.m"]
Get[ $UserBaseDirectory <> "/TriadicMemory/encoders.m"]
```

```
n = 1000; p = 15;
```

```
TemporalMemory[ T, {n, p}];
```

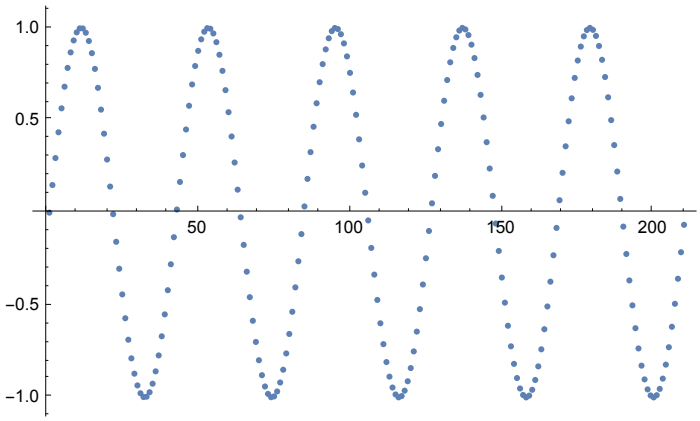
Temporal prediction

```
predict[x_] := SDR2Real[T[Real2SDR[x, {-1, 1}, {n, p}]], {-1, 1}, {n, p}]
```

Test signal

```
signal = Table[ Sin[x], {x, 0, 10 Pi, 0.15}];
```

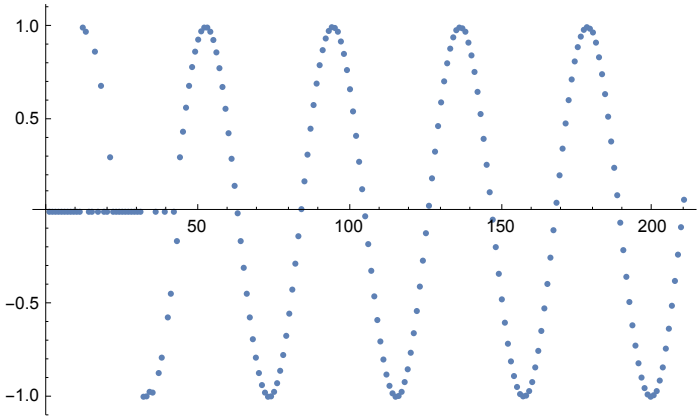
```
ListPlot[signal]
```



Step-by-step predictions during training

Using a temporal associative memory with n = 1000, p = 15.

```
ListPlot[predict /@ signal]
```



Auto-playing the sequence

Starting from point 0.5, feeding each prediction back as input for the next step

```
NestList[ predict, 0.5, 200] // ListPlot
```