Wouter Kouw

Assistant Professor

Bayesian Intelligent Autonomous Systems lab
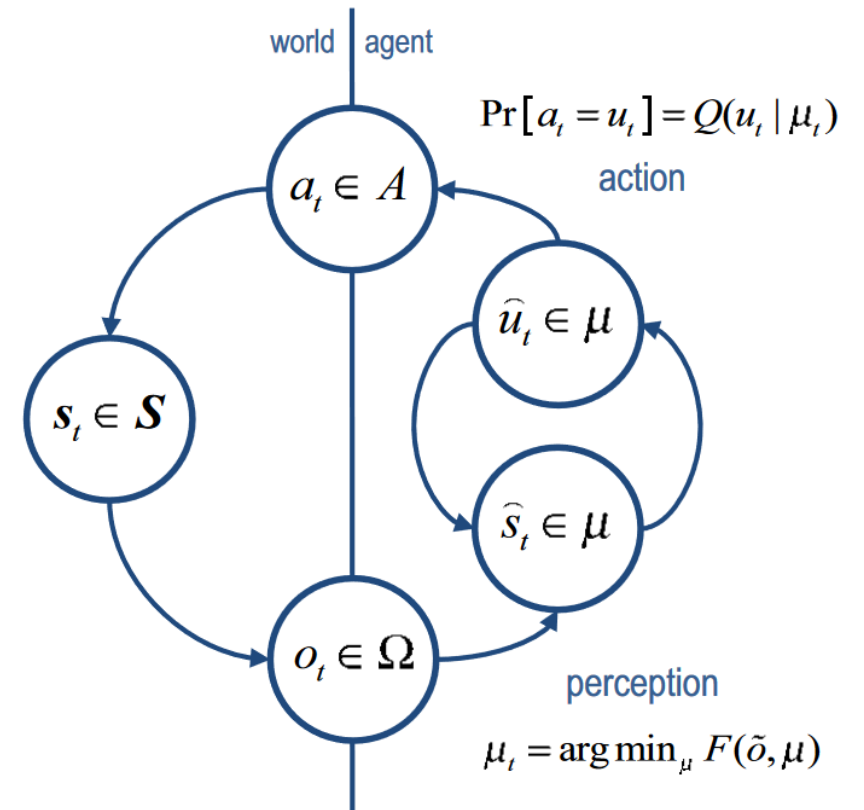
Department of Electrical Engineering | TU Eindhoven

https://wmkouw.github.io/
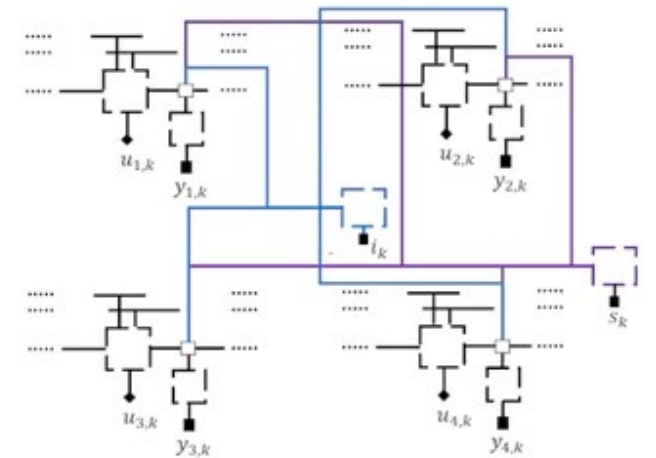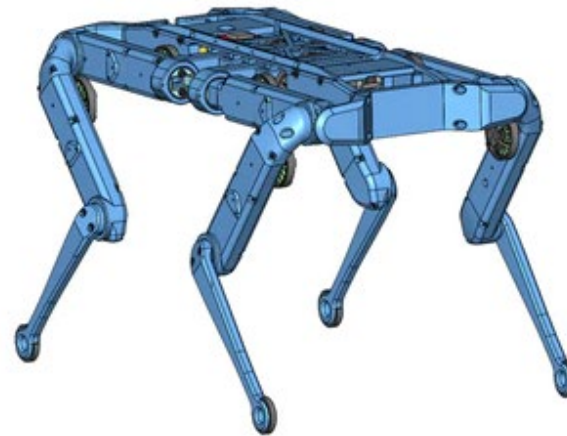
Field of research

Active inference agents

- Bio-inspired perception and action
- Probabilistic machine learning.
- Variational Bayesian inference.

world | agent

$$\Pr[a_t = u_t] = Q(u_t \mid \mu_t)$$

action

$a_t \in A$

$\hat{u}_t \in \mu$

$s_t \in S$

$\hat{s}_t \in \mu$

$o_t \in \Omega$

perception

$$\mu_t = \arg\min_\mu F(\tilde{o}, \mu)$$

Open problems I work on

1. Continuous-state and continuous-action AIA.
2. AIA by message passing on factor graphs.
3. AIA on board mobile robotics.
4. Learning contact dynamics.
5. Multi-joint dynamics.

Expertise

1. (Variational) Bayesian inference.
2. Probabilistic programming.
3. Message passing.
4. System identification.
5. Adaptive control.

rxinfer

Automatic Bayesian Inference through **Reactive Message Passing**