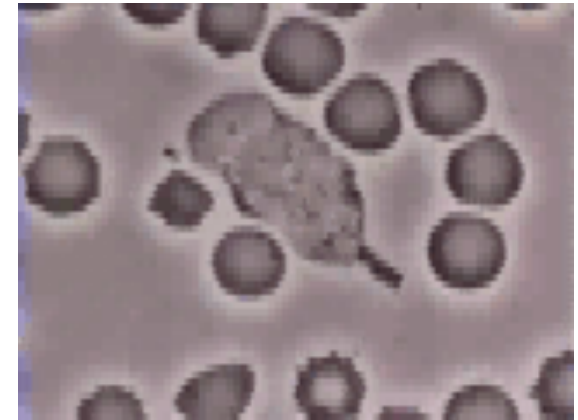
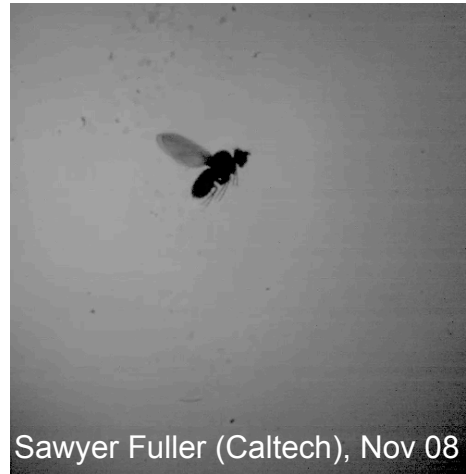


Control of Complex Systems



Alice

- 30 P4 cores @ 2+ GHz
- 30G mem, 3 Gb/s net
- 8 LADAR, 10 cameras
- 200k+ lines of code
- 50 engineers, 1.5 years
- 600 miles of self-driving

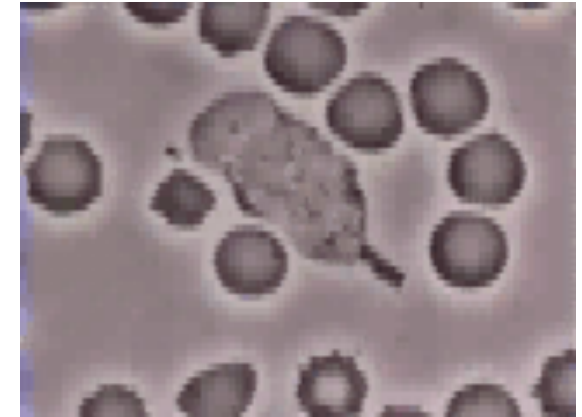
Drosophila

- 300k neurons @100 Hz
- ~600-1000 sensors
- Most neurons are dedicated to sensor processing
- Architecture (?)

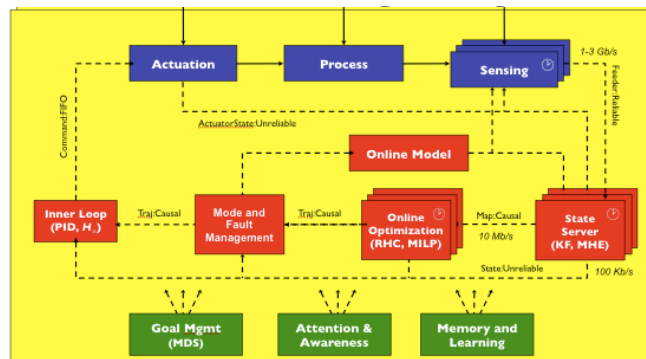
Neutrophil

- DNA: 3G base pairs
- 20k genes, ~3kb each
- Transcription: 75 bp/sec => 40 sec "clock"
- Life span: 12 hours
- Architecture (?)

Control of Complex Systems

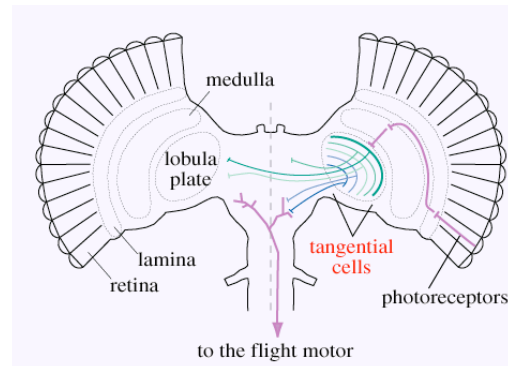


Alice



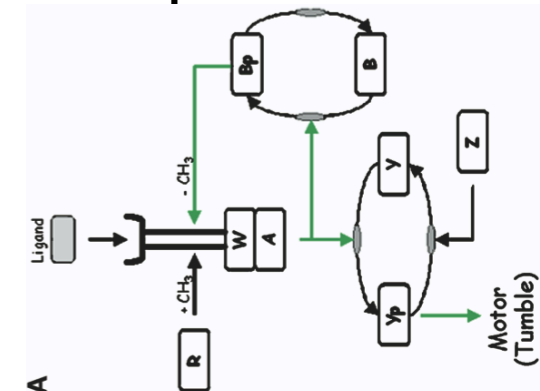
- Dominant challenges: (design for) verification and robustness

Drosophila



- Dominant challenges: decoding organization and architecture

Neutrophil



- Dominant challenges: (lack of) modularity, stochastic program'g