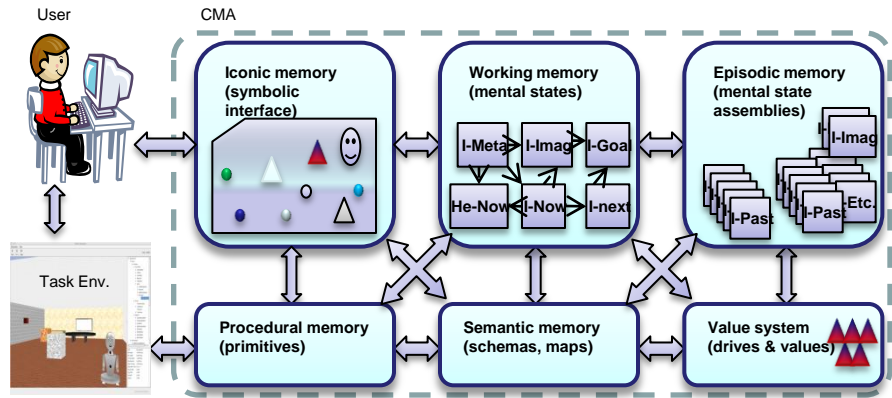


George Mason University
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Advanced Study

Lead investigators and
current team members:

Kenneth A. De Jong,
Giorgio A. Ascoli, and
Alexei V. Samsonovich



Research areas of interest, which are
also areas of qualification and unique
capabilities:

Cognitive and metacognitive
architectures (Samsonovich, De Jong
& Kitsantas, *International Journal of
Machine Consciousness*, 1, 111-130,
2009)

Connectionist modeling of the
hippocampal formation (Samsonovich
& McNaughton, *JN* 1997;
Samsonovich & Ascoli, *Learn&Mem*
12, 193-208, 2005)

Semantic cognitive mapping of
natural language (Samsonovich &
Ascoli, *Frontiers in AI & Applications*,
157, 111-124, 2007; *PLoS One*,
under review)

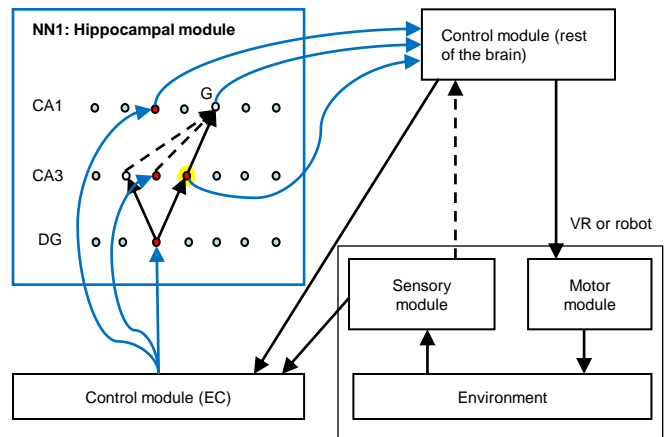
Specific capabilities our group is
seeking are:

**Robust learning in agents based on a
cognitive-metacognitive architecture
(CMA)**

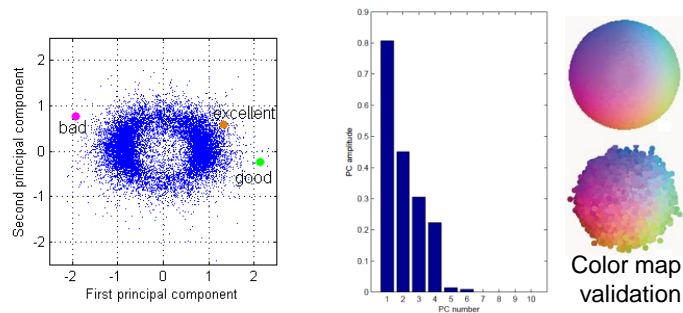
**Spatial learning / navigation based on
cognitive mapping in a spiking neural
network**

**Automated semantic mapping of
arbitrary data (text, images, internal
representations of knowledge) based
on given or detected relations of
synonymy and antonymy**

NeuroNavigator microcircuit architecture



Semantic mapping of language



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