



Neuromorphic LLC

Harvesting evolution

- Neuromorphic Technical Lead:
 - Marwan Jabri
 - (www.linkedin.com/in/marwanjabri)
 - Google scholar public page:
<http://scholar.google.com/citations?user=UlaMqyAAAAAJ>
 - ResearchGate: https://www.researchgate.net/profile/Marwan_Jabri
 - Previous collaborations:
 - R. Etienne-Cummings, JHU
 - D. Hammerstrom, PSU
 - H.P Graf and L. Jackel, AT&T Bell Labs
 - S.Y. Lee, KAIST
 - T Sejnowski, Salk Institute
 - E. Vittoz, CSEM



Areas of Interests

- Computational models of visual pathway
 - Models of V1, V4, PIT and AIT.
 - Unsupervised predictive Hebbian learning framework in a self-organizing topographic maps
 - Invariance learning.

- Visual object/subject recognition
 - Limited number of object (i.e. not search in millions)
 - Learning of objects incrementally and on the fly

- Sensor integration (auditory, visual, ultra-sound, infra-red) for object/subject localization



Unique Qualifications and Capabilities

- Experienced team with a combined experience of 60 man-years of R&D and product development in neural computation architectures, low-power implementation, learning algorithms, real-time systems (embedded and DSP) and carrier-grade systems.
- Deep experience in:
 - ▣ Modelling of visual pathway in primate (V1, V4, PIT, AIT, MSTd)
 - ▣ Modelling of sensorimotor control with real-time reinforcement learning (cerebellum, basal ganglia, ventral tegmental area)
 - ▣ Saccadic system for attending to auditory/visual locus in space (superior colliculus, frontal eye fields)
 - ▣ Neural computation architectures and learning algorithms, in software and hybrid analog/digital frameworks
 - ▣ Mapping of neural computing architectures to Big Data frameworks (Hadoop and Disco)
 - ▣ Neural computing simulators and learning algorithms in C/C++ (authors of MUME) and Python (contributor to Topographica, <https://github.com/ioam/topographica>)
 - ▣ Software (client and server) side development and optimization (C, C++, Java, Python, DSP, GPU) of neural computing and machine learning systems.



Participation in MICrONS

- Neuromorphic very keen on participating and contributing in technical area 3 and 4.
- Broad and deep knowledge in visual cortical modelling and machine learning (v1,...,AIT).
- Large scale reliable software and systems, including parallelized simulators, interfacing to real world systems, multimedia (real-time and off-line).
- Client/Server applications and desktop/smartphone applications.



Contact information

Marwan Jabri

Neuromorphic LLC

Email: marwan.jabri@neuromorphic.com

415 342 8882

www.neuromorphic.com