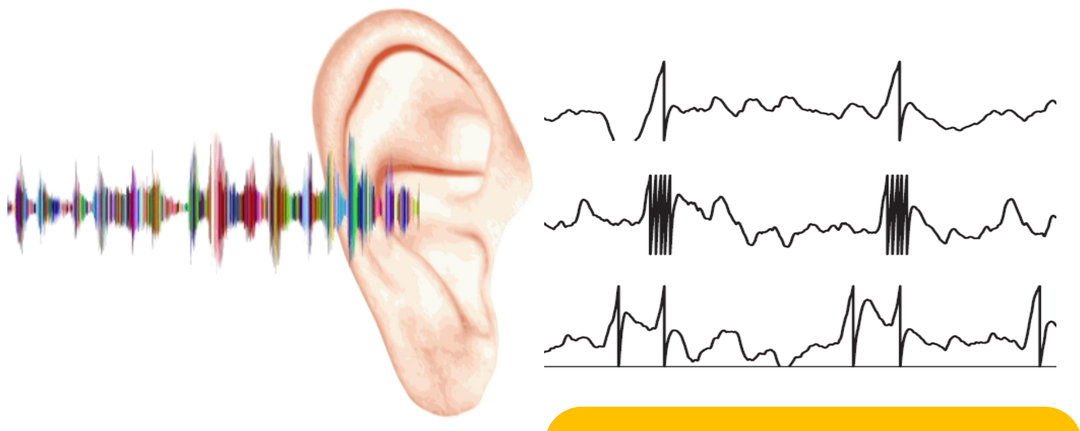
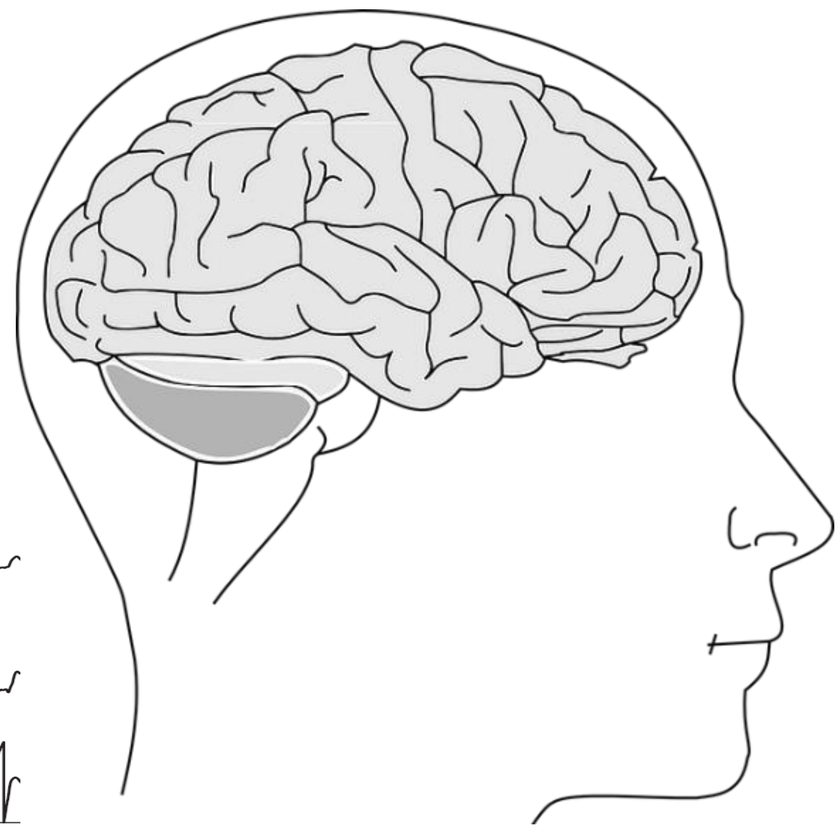
Department of Electrical & Computer Engineering
Faculty of Engineering
National University of Singapore

Human Language Technology Laboratory

Neuromorphic Computing

We advance the biologically plausible spiking neural network through efficient neural encoding, novel learning algorithms to accomplish perception, cognition and memory functions.





Neural Coding

Spike-based Learning

Memory and Knowledge Management

Neural Coding

- Sensory stimuli are represented in the human sensory and nervous system as spike patterns
- Rate coding, latency coding, phase coding, population coding, predictive coding etc.

Spike-based Learning

- The human brain is highly plastic and learning occurs at every moment based on spikes.
- Spike timing and spike rate based learning rules.

1st Prize in 2018 International Collegiate Competition for Brain-Inspired Computing

Memory and Knowledge Management

- Neural networks cooperate to accomplish complex perception, cognitive and memory functions
- Integrate functions such as consolidation, storage, and recall into a complete system

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Team Members: Haizhou Li , Jibin Wu, Zihan Pan, Malu Zhang, Madhavi Maulik, Das Rohan Kumar, Yilmaz Emre, Qu Yang