# CNeuro2024 Lecture Abstracts

## Sukbin Lim

### Abstract 1 – Basic Lecture:

**Attractor Network for Working Memory and Decision-Making**

Since Hopfield's seminal work, attractor network theories have been widely used in theoretical neuroscience to account for memory, decision-making, and classification processes. In this lecture, I'll explore various types of attractor models, their properties, and formation through synaptic plasticity. Experimental evidence supporting attractor networks and recent debates with alternative models will be discussed.

### Abstract 2 – Advanced Lecture:

**Modular Architecture for Understanding Cognitive Interactions**

The modularity structure in the brain is thought to be advantageous for fast adaptation to changing environments. This talk will highlight two models using modular architecture to explore the interaction between working memory and other cognitive functions. The first model integrates sensory efficient coding and memory attractors to reproduce error patterns in working memory tasks that reflect environmental statistics. The second model demonstrates how decision-making interactions with working memory, via modular architecture, alter memory representation when decision-making occurs amidst memory maintenance.