# CELL PRESS-BEIJING CONFERENCE
# AI AND THE BRAIN

November 6-7, 2019 / 2019年11月6-7日
Beijing Sunrise Kempinski Hotel · Grand Ballroom North
北京日出东方凯宾斯基酒店·北大宴会厅

## CONFERENCE PROGRAM

### 11.6

#### AM

| 08:45-09:15 | Welcome and opening speeches | |
|---|---|---|
| **Session 1** | **Cognitive Processing and Hierarchical Computations** | |
| Session-chair：Yanchao Bi (Beijing Normal University) | | |
| 09:15-09:45 | Xiao-Jing Wang | Neural circuits for multiple tasks and distributed cognition in the global brain |
| 09:45-10:15 | Jun Zhu | Spiking machine-learning algorithms |
| 10:15-10:45 | Daeyeol Lee | Evolution of intelligence |
| 10:45-11:15 | Tea Break | |
| **Session 2** | **Movement and Sensing** | |
| Session-chair：Inah Lee (Seoul National University) | | |
| 11:15-11:45 | Tony Prescott | Neurorobotics: Understanding the embodied brain as a cyberphysical system |
| 11:45-12:15 | Yulia Sandamirskaya | Neuromorphic computing: From the neuronal basis of cognition to efficient robot controllers |
| 12:15-12:45 | Kristin Branson | Analyzing animal behavior using machine vision and learning |
| 12:45-14:15 | Lunch | |

### 11.6

#### PM

| **Session 3** | **Circuit architectures** | |
|---|---|---|
| Session-chair：Gabriel Kreiman (Harvard University) | | |
| 14:15-14:45 | Virginia de Sa | Using insights from cortical architecture to improve neural networks |
| 14:45-15:15 | Minmin Luo | Reward processing and memory expression by the dorsal raphe |
| 15:15-15:45 | Sen Song | A computational platform and cognitive model of the brain to unite the field of computational neuroscience and AI |
| 15:45-16:15 | Liping Wang | Hierarchical sequence processing in monkey and human brains |
| 16:15-16:45 | Tea Break | |
| 16:45-18:15 | Panel | |
| 18:15-20:00 | Dinner | |
| 20:00-22:00 | Cell Press Night | |

### 11.7

#### AM

| **Session 4** | **Image Processing and Biological Vision** | |
|---|---|---|
| Session-chair：TBD | | |
| 09:00-09:30 | James DiCarlo | A collaboration of brain science and AI to reverse engineer human visual intelligence |
| 09:30-10:00 | Li Zhaoping | Primary visual cortex as a center-stage for understanding human vision: Bottom-up and top-down processes in central versus peripheral visual fields |
| 10:00-10:30 | Shimon Ullman | The digital baby: Combining learning with innate structures |
| 10:30-11:00 | Wu Li | Parsing images through concerted cortical processes |
| 11:00-11:30 | Tea Break | |
| **Session 5** | **Brain Networks in Health and Disease** | |
| Session-chair：Xiaosi Gu (Icahn School of Medicine at Mount Sinai) | | |
| 11:30-12:00 | Edward Chang | Decoding human speech cortex |
| 12:00-12:30 | Kafui Dzirasa | Mapping emotions: Discovering structure in mesoscale electrical brain recordings |
| 12:30-13:00 | Juan (Helen) Zhou | Network-sensitive brain imaging in neuropsychiatric disorders: A longitudinal perspective |
| 13:00-14:30 | Lunch | |

### 11.7

#### PM

| **Session 6** | **Learning, Development, and Self-organization in Neural Networks** | |
|---|---|---|
| Session-chair：Xiaoqin Wang (Tsinghua University) | | |
| 14:30-15:00 | György Buzsaki | Dynamics and learning in a preconfigured brain |
| 15:00-15:30 | Julie Grollier | Computing with oscillating nanodevices |
| 15:30-16:00 | Mu-ming Poo | Synaptic plasticity from natural to artificial neural networks |
| 16:00-16:30 | Tea Break | |
| 16:30-18:00 | Panel | |
| 18:00-18:30 | Closing Remarks | |
| 18:30-20:30 | Dinner | |