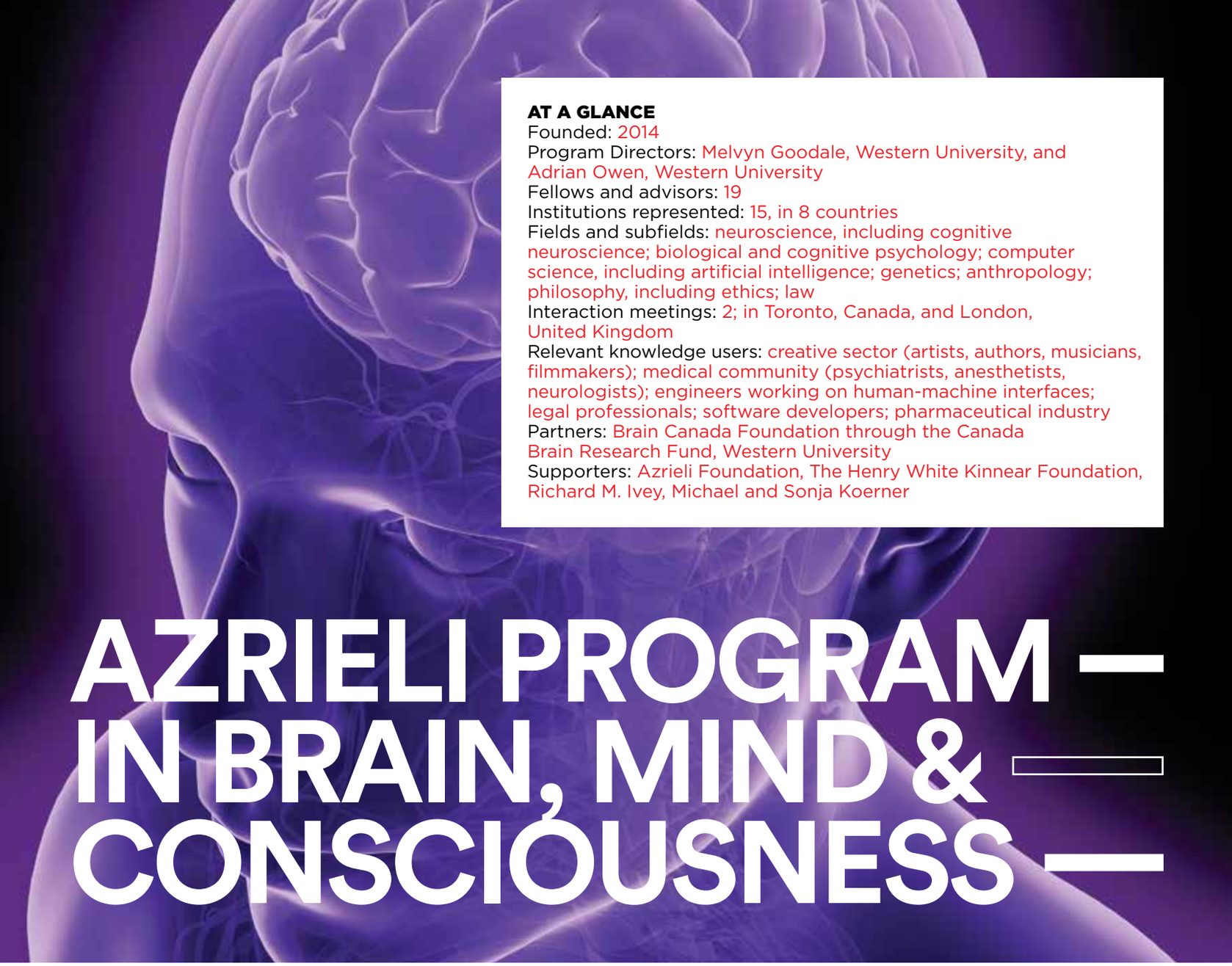

AT A GLANCE
Founded: 2014
Program Directors: Melvyn Goodale, Western University, and Adrian Owen, Western University
Fellows and advisors: 19
Institutions represented: 15, in 8 countries
Fields and subfields: neuroscience, including cognitive neuroscience; biological and cognitive psychology; computer science, including artificial intelligence; genetics; anthropology; philosophy, including ethics; law
Interaction meetings: 2; in Toronto, Canada, and London, United Kingdom
Relevant knowledge users: creative sector (artists, authors, musicians, filmmakers); medical community (psychiatrists, anesthetists, neurologists); engineers working on human-machine interfaces; legal professionals; software developers; pharmaceutical industry
Partners: Brain Canada Foundation through the Canada Brain Research Fund, Western University
Supporters: Azrieli Foundation, The Henry White Kinnear Foundation, Richard M. Ivey, Michael and Sonja Koerner

AZRIELI PROGRAM IN BRAIN, MIND & CONSCIOUSNESS

Seeks to examine the neural underpinnings of consciousness, leading to better treatments for mental health disorders and insights into the most profound questions about human nature.

The Azrieli Program in Brain, Mind & Consciousness at CIFAR completed its first full year in 2015/2016. During the year, the program expanded its membership from nine to 19 researchers, including nine new senior fellows from seven countries.

The research agenda for this program is broad and ambitious, incorporating such issues as identifying the specifically human aspects of consciousness, the neural basis of these distinctively human traits, how they are acquired developmentally and whether machines can have consciousness. The program's first two meetings enabled progress on these issues by bringing together theorists and experimentalists across a broad range of disciplines — cognitive neuroscientists, neurologists, geneticists and other biologists, psychologists, computational scientists and philosophers — in contexts that facilitated the generation and exchange of new ideas and began to establish a common language and framework of investigation. Fellows began to identify highly focused thematics for the next four program meetings, including biomarkers of consciousness, the development of consciousness, artificial intelligence and the dynamics of consciousness.

The program also held its first public outreach event, attracting an audience of 900, plus nearly 700 viewers online, to explore how the human brain engages with music. Fellows developed plans for three upcoming major international initiatives, including a symposium on The Origins of Consciousness in conjunction with the 2016 Annual Meeting of the Japanese Neuroscience Society in Tokyo.

Research

- Following discussion at the December 2015 program meeting, Koerner Fellow **Adrian Owen** and Senior Fellow **Timothy Bayne** (both Western University) collaborated on a new paper that argued that the levels-based framework for conceptualizing global states of consciousness is untenable and developed in its place a multidimensional account of global states. The paper has already generated significant discussion in the literature.
  > **Bayne T**, Hohwy J, **Owen AM**. 2016. Are there levels of consciousness? Trends Cogn Sci. 20(6): 405-413.

- The program facilitated the recruitment of Senior Fellow **Lisa Saksida** from the University of Cambridge, United Kingdom, to Western University in Canada. Dr. Saksida is a world-renowned neuroscientist whose research seeks to understand the psychological processes underlying memory and perception. This move would not have occurred had it not been for the networking possibilities created by the Azrieli Program in Brain, Mind & Consciousness at CIFAR.

- CIFAR support of Senior Fellow **Axel Cleeremans** (Université libre de Bruxelles) is enabling the development of a neural network–based computational model of the meta-representational processes through which one network can re-describe what another network is doing. This relationship between a first-order mechanism and a higher-order mechanism is a crucial building block of conscious agents.

IdeasExchange

- The program initiated a public outreach event entitled **Our Musical Brain**, which combined musical performance and presentations to explore what happens in our brains when we engage with music. The sold-out event at Koerner Hall in Toronto featured performances by Canada's acclaimed chamber ensemble, the Gryphon Trio, along with mezzo-soprano Julie Nesrallah, who also served as host for the evening. Leading neuroscientists and CIFAR Senior Fellows **Laurel Trainor** (McMaster University) and **Robert Zatorre** (McGill University) gave presentations exploring the conscious and unconscious mental processes involved in making, perceiving and responding to music.

Global Academy

- The program has already begun to engage early-career researchers in their ongoing activities. Two postdoctoral fellows from Western University attended program meetings in the role of program reporters. The program also began planning for a 2017 Winter School to be held in Banff, Alberta. This event, held every two years, will be organized by program member trainees, and lecturers will be chosen to reflect the program's breadth of topics and disciplines. Attendees will be chosen through a highly competitive selection process.

To learn more: **https://www.cifar.ca/research/brain-mind-consciousness/**

Senior Fellow Axel Cleeremans presents at the December 2015 meeting of the Azrieli Program in Brain, Mind & Consciousness at CIFAR.