ISSA Summer School

Announcement:
An ISSA Summer School, August 3-21, 2015, in Kobe, Japan

Title:
Towards an Integrative Approach to the Study of Awareness

Summary:

The Initiative for a Synthesis in Studies of Awareness, ISSA for short, is the product of a small group of scientists and scholars advocating an integrative approach to the study of awareness (some of the lecturers listed below, as well as other teachers, such as Jun Makino, Mitsu Okada, Hayato Saigo and Shigeru Taguchi). We will organize a three-week Summer School, with plenary lectures in the morning and parallel sessions in the afternoon, in which the lecturers will lead study groups that may result in original research.

We are using the notion of awareness in a broad sense: we include consciousness in general as well as self-awareness, and responsiveness of autonomous agents in complex systems to each other and to their environment. We thus include neuroscience; cognitive science; artificial intelligence; artificial life and robotics; logic and philosophy, in particular phenomenology. We also include high performance computing and other techniques and methodologies, useful in the areas mentioned above. This is a trial project, to see how we can effectively integrate all these different fields, by forming a forum to present many different approaches.

Participants are expected to have a strong interest, as well as at least some experience, in neuroscience, or in AI, or in some field within cognitive science or philosophy. We expect the students and postdocs to attend the summer school for the full three weeks, to maximize interactions across the many different fields of expertise that they

bring in. The summer school is sponsored by ELSI <http://www.elsi.jp/>, the Earth-Life Science Institute at Tokyo Institute of Technology; by EON <http://eon.elsi.jp/>, the ELSI Origins Network funded by the John Templeton Foundation; by AICS <http://www.aics.riken.jp/en/overview/lab>, the RIKEN Advanced Institute for Computational Science; and the KAKENHI <http://decisions.naist.jp/english/index.html> program on Prediction and Decision Making.

As part of the summer school, students will attend the EON Workshop on "The Spontaneous Emergence of Autonomous Agents in Complex Systems" on August 12-14. The ELSI Origins Network (EON) <http://eon.elsi.jp/> is a new initiative launched by the Earth-Life Science Institute (ELSI) <http://www.elsi.jp/> at Tokyo Institute of Technology <http://www.titech.ac.jp/english/>. EON's goal is to promote Origins of Life as a scientific field and as a global community, and to support research that addresses its most fundamental questions. This workshop is the first in a planned series of ten, each of which will bring together leading scientists and promising students and postdocs, to formulate and address the most important questions in the field. This first workshop addresses the spontaneous emergence of autonomy in a very broad sense, from the origin of life on Earth and possibly elsewhere in the universe, to the origin of plants and animals as more complex forms of life, all the way to the origin of intelligence and self-awareness, as well as the origin of cultural institutions. By participating in the workshop, students will gain a deeper understanding of the questions at the interface between the physical, life and cognitive sciences, as well as having the opportunity to contribute to an expected publication.

Contact:
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LOCATION:
Each day, except on Aug. 11:

Center for Planetary Science <https://www.cps-jp.org/access/?ml_lang=en>
(CPS),

7-1-48, Minamimachi, Minatojima, Chuo-ku, Kobe 650-0047, Japan

PROGRAM:

DAILY SCHEDULE for the first two weeks:

(only on the first day: 9:00 - 9:30: Introduction)
09:30 - 10:30 lecture
10:30 - 11:00 coffee break
11:00 - 12:00 lecture
12:00 - 13:30 lunch + free time
13:30 - 15:00 five parallel discussion groups, each one discussing some of the questions that a lecturer brought up in the morning
15:00 - 15:30 tea break
15:30 - 16:30 each of the five groups gives a short presentation, roughly 10 minutes with 5 minutes questions, about their conclusions
16:30 - 17:00 tea break
17:00 - 18:00 a session for more technical follow-up discussions with the lecturer(s)
(only on the first day: 18:00 - : Welcome party!)

PROGRAM OF LECTURES for the first two weeks:

First Week:

8/3: Overview: Nao Tsuchiya (2 lectures):
        Towards understanding consciousness/awareness: an overview
8/4: Melanie Wilke (2 lectures):
        Neural correlates of (visual) consciousness on different spatial and temporal scales;

Approaches to evaluate the causal contribution of brain regions and coding principles
for conscious perception;
8/5: Shaun Gallagher (2 lectures):
Intentionality and pre-reflective consciousness;
Bodily affect and phenomenal consciousness
8/6: Masako Myowa (2 lectures):
Emergence of self: Development of social cognition from perinatal period;
Ontogeny and its evolutionary foundation of human mind
8/7: Kenji Doya (2 lectures):
Learning algorithms and the brain architecture;
Bayesian inference and mental simulation

Second Week:

Monday, August 10
9:00-10:00: Minoru Asada:
Artificial Empathy
10:00-10:30: discussion

10:30-11:00: coffee break

11:00-12:00: Yukie Nagai:
Emergence of self awareness in robot based on predictive learning
12:00-12:30: discussion

12:30-14:00: lunch break

14:00-15:00: Kaoru Amano:
Toward the neural cause of visual perception
15:00-15:30: discussion

15:30-16:00: tea break

16:00-17:00: Shinji Nishimoto:

Experimental approaches to deciphering perceptual experiences
17:00-17:30: discussion

Tuesday, August 11:
10:00 - 13:00: Emergent Robotics Lab tour, by Minoru Asada and Yukie Nagai:

[Group A]
10:00-11:30 (at F1-401): Introduction by Minoru Asada
Robot demos (Affetto, fetus simulator/robot, Lingua)
11:40-13:00 (at U1w-616):
Robot demos (iCub, ASD simulator, child-robot interaction)

[Group B]
10:00-11:30 (at U1w-616): Introduction by Yukie Nagai
Robot demos (iCub, ASD simulator, child-robot interaction)
11:40-13:00 (at F1-401):
Robot demos (Affetto, fetus simulator/robot, Lingua)

13:00 - 14:30: lunch break

14:30 - 17:30: CiNet lab tour, by Kaoru Amano and Shinji Nishimoto:

14:30 - 15:30 7T MRI, MEG tour (all participants)

[Group A]
15:30 - 16:30 Amano group tour
16:30 - 17:30 Nishimoto group tour

[Group B]
15:30 - 16:30 Nishimoto group tour
16:30 - 17:30 Amano group tour

August 12-14: EON workshop on "The Spontaneous Emergence of Autonomous Agents in Complex Systems"
8/12: Giovanna Colombetti (2 lectures):
The embodied mind; Philosophy and emotions

8/13: Nathaniel Virgo:
Towards an Enactive Origin of Life
8/13: Nicholas Guttenberg:
Collective effects and the emergence of robust behavior
8/14: Eric Smith (2 lectures):
Biogenesis I. The planetary context for questions about the origin of life.
Biogenesis II. Error and robustness; individuals and ecosystems: the place of autonomous agents in the biosphere.

Third Week:

8/17-18: Students write drafts for research proposals, in small groups

8/19: Students give presentations about their drafts for research proposals

9:30 - 9:45: poster presentation by Karen Yamazaki
9:45 - 10:00: art and science presentation by Aya Tsuboi (Kavli-IPMU)
10:00 - 10:45: 1st research proposal presentation
10:45 - 11:15: coffee break
11:15 - 12:00: 2nd research proposal presentation
12:00 - 13:30: lunch + free time
13:30 - 14:15: 3rd research proposal presentation
14:15 - 15:00: 4th research proposal presentation
15:00 - 15:30: tea break
15:30 - 16:15: 5th research proposal presentation
16:15 - 17:00: 6th research proposal presentation

8/20: Piet Hut: The Mind as a Lab: What is Reality, that it can show so many faces?
(afternoon structure as in the first week, with discussion groups)

8/21: general discussion about the future of ISSA in terms of a grass roots initiative, by the student/postdoc participants