Interdisciplinary Advances in Affective Cognition

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Introduction to Affective Cognition

In Ancient Greek philosophy, emotion is considered the opposite of cognition: cognition is rational while emotion is irrational; cognition is cold while emotion is hot. Such thinking has influenced the tradition in the field of cognitive science, where emotion is often described as what contaminates or irrationalizes our judgments and decision-making. Thus, while the ways in which humans express, recognize, and experience emotion have been studied extensively in other subfields of psychology (e.g., affective science), rigorous attempts to understand the role of emotion in thinking, learning, and reasoning have been surprisingly sparse in contemporary cognitive science. As a quick example, a keyword search in the Cognitive Science Proceedings for "Affect" or "Emotion" shows that only 2% of published proceedings over the past three years (55 out of 2454 between 2018 and 2020) have titles including one of these key words.

Yet, for anyone who studies how the human mind works, the ubiquity and significance of emotions in our mental lives is undeniable. What we think others feel influences how we learn from and interact with others. We can represent not only others' goals, desires, beliefs, and actions but also their affective responses to events. Such representations are also rich and fine-grained: we have sophisticated, intuitive theories of other minds that not only allows us to understand what others think, believe, and want, but also what others find funny, amusing, or moving, or what makes them embarrassed, disappointed, or furious.

An emerging body of work in cognitive science aims to understand how humans reason about others' affect, which we term ***Affective Cognition*** (Ong, Zaki, & Goodman, 2015; Wu, Baker, Tenenbaum, & Schulz, 2018; Saxe & Houlihan, 2017). This research area is grounded in traditional theory of mind research that investigates how we reason about other minds (Harris, Johnson, Hutton, Andrews, & Cooke, 1989; Lagattuta, 2014; Wellman & Liu, 2004). In 2014, we organized a symposium at the Cognitive Science Society meeting in Quebec (Skerry, Ong, Wu, & Meltzoff, 2014) when this area was still in its nascency. In the past 7 years, the application of new approaches (e.g., computational modeling, neuroscience, and anthropological investigations) has given this interdisciplinary area an impetus for rapid growth and exciting achievements. This workshop will provide a timely venue for researchers to review and synthesize these developments, establish new collaborations, and discuss broader future directions for this young, interdisciplinary field.

Our workshop features scholars who are leading this growing field by breaking new ground, theoretically and empirically. They represent diverse theoretical perspectives and a wide range of empirical approaches, including developmental, computational, neural, anthropological, and machine learning methods. We also have selected our speakers to represent both well-recognized senior researchers and early career, rising stars in the field. Regardless of their career stages, these speakers are using interdisciplinary approaches to work towards a more complete theory of the human mind that highlights the role of emotion in cognition.

In addition to cognitive scientists who study the role of emotion, we have also invited outstanding affective scientists and social psychologists who are interested in incorporating advances in cognitive science into their own research program. For instance, Anat Perry, Daniel Dukes, and Mark Thornton are all individuals who conduct research highly relevant to cognitive science but do not usually attend this conference. By bringing together researchers from different fields with diverse views and approaches, our workshop will provide an ideal opportunity to discuss the state of the art and future of this new field.

Goals of the workshop

1. Introduce the emerging area — *Affective Cognition* — to the cognitive science community. We will define the scope of affective cognition, lay out its connections with other key domains of research in cognitive science, and share the latest theoretical and empirical advances in affective cognition.
2. Attract researchers at various career stages to this field. Affective cognition is a relatively novel area of research, and many topics remain relatively unexplored. We expect our workshop to be a platform for delivering this message. Our hope is to broaden the range of cognitive scientists who are interested in affective cognition, and to inspire more students and early career researchers to become part of this community.

3. Bridge interdisciplinary gaps and encourage new empirical and theoretical collaborations. By bringing together scholars from a range of fields, we hope to broaden the scope of cognitive science and highlight the connections between seemingly disparate fields. These interdisciplinary efforts will inform research within cognitive science and increase the impact of cognitive science research on other disciplines.

Confirmed Speakers

Hyowon Gweon (organizer) is an associate professor in psychology at Stanford University. She is interested in humans' abilities to learn from others' actions, demonstrations, and emotional reactions to events.

Yang Wu (organizer) is a postdoctoral researcher at Stanford University. Her work looks at how infants and children use others' emotional expressions to guide their own learning, reasoning, and exploration.

Desmond Ong (organizer) is an assistant professor of information systems and analytics at the National University of Singapore. His research focuses on building computational cognitive models and AI models of emotion understanding.

Eric Walle is an associate professor in psychology at the University of California, Merced. His research investigates infants' behavioral response to discrete emotions such as anger, fear, sadness, disgust, and joy.

Gy*ö*rgy Gergely is a professor in cognitive science at Central European University, Budapest. He is interested in how infants learn from others' emotions through ostensive communication and natural pedagogy.

Daniel Dukes is a postdoctoral researcher at the University of Fribourg, Switzerland. His work focuses on socio-emotional development, and he has recently edited a book called *Foundations of Affective Social Learning*(Dukes & Clément, 2019).

Vanessa Lobue is an associate professor in psychology at the University of Rutgers, Newark. Her work looks at how humans perceive negative or threatening stimuli and whether early perceptual biases for threats contribute to maladaptive avoidance behaviors.

Seth Pollak is a professor in psychology at the University of Wisconsin-Madison. His work investigates how adverse experiences in early childhood influence the way children process emotion information.

Kara Weisman is a postdoctoral researcher at Boston University. Her work takes an anthropological approach to understanding how people in different cultures conceptualize sensations, cognitive abilities, and emotions.

Mark Thornton is an assistant professor of psychological and brain sciences at Dartmouth College. His research investigates the neural basis of how people organize and use social knowledge to make predictions about others.

Anat Perry is an assistant professor in psychology at the Hebrew University of Jerusalem. Her research focuses on understanding the cognitive and neural mechanisms enabling empathy and our understanding of others.

Rebecca Saxe is a professor in brain and cognitive sciences at MIT. She combines behavioral testing and brain imaging technologies to study theory of mind and emotion.

Workshop Structure

The workshop will be composed of four talk sessions and two poster sessions. Each talk session will have 2 or 3 invited talks (20 minutes each) that center on one specific topic of affective cognition, followed by a 20-min panel discussion. Additionally, we plan to send out a call for posters to include work by more junior researchers. The schedule below assumes a 9am-5pm workshop with a 2-hour lunch and 6 hours of content.

Tentative Schedule
- **Opening Remarks**
  Hyowon Gweon
- **Section 1**: Learning From Others' Emotions
  Eric Walle, *György Gergely*, *Daniel Dukes*
- **Section 2**: Intuitive Theories of Emotion
  Kara Weisman, *Desmond Ong*, *Yang Wu*
- **Poster Session A**
- **Section 3**: Environmental Effects on Affective Cognition
  Seth Pollak, *Vanessa Lobue*
- **Section 4**: Computational & Neuroscience Approaches to Affective Cognition
  Anat Perry, *Mark Thornton*, *Rebecca Saxe*
- **Poster Session B**

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