

9th International Conference on
Affective Computing & Intelligent Interaction
ACII 2021
Pocket Guide



ACII 2021

September 28-October 1, 2021

Virtual Event/Nara Japan

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Welcome to ACII 2021!

We are honored to welcome you to the 9th International Conference on Affective Computing & Intelligent Interaction (ACII 2021). ACII conference series started in 2005 as a bi-annual conference and established itself as a leading forum for research in Affective Computing and Intelligent Interaction. The theme of this year's conference is Ethical Affective Computing considering ethical uses, fairness and bias in emotional AI. We have strived to build an engaging program featuring keynote talks and a panel by experts of ethics in AI and Affective Computing.

The conference was originally planned to be held in Nara. However, the global pandemic forced us to switch the format to a virtual event. We are saddened that we are not able to welcome you in Nara this year, however, thanks to a dedicated team of virtual organizers, we are able to leverage the best available technologies to offer a virtual program allowing for networking opportunities and dissemination of ideas through video conferencing, webinars and interacting through a social virtual environment (Gather Town).

ACII 2021 received 123 valid submissions. There were 56 papers accepted as full papers (45.5%), 29 of which will be presented as orals (23.6%) and 27 as posters. These papers were selected through a rigorous selection process, coordinated by the Program Chairs and the Senior Program Committee. The Technical Program Committee consisted of over 270 experts who conducted the reviews. Each submission was reviewed by at least three experts, including the senior program committee members, who were asked to comment on the strengths, weaknesses, novelty and impact of the work. The Senior Program Committee members prepared a summary of the main points to be addressed by the authors. The Program Chairs used the recommendation and consolidation reports of the Senior PC members and the reviewers' comments to render a final decision on each paper. The selected papers will be presented in nine oral sessions and two poster sessions.

This year ACII is organized as a dual-track conference. We are happy to announce the following highlights of ACII 2021: one special session, one panel discussion, and a session highlighting the best of IEEE Transactions on Affective Computing. The special session will focus on ordinal affective computing. The Best of IEEE Transactions on Affective Computing (TAC) session will consist of presentations from the recipients of the TAC Best Paper Awards and the TAC Most Influential Paper Award. As affective computing technology is gradually becoming increasingly widespread, the ethics of its use must come to the forefront. This year's panel entitled, "Panel Discussion on the Ethics of Affective Computing," will provide a forum for leading experts in both academia and industry to discuss the future of the field. With the exciting oral and poster sessions, and the above listed highlights, we anticipate many intense, productive, and enlightening discussions.

We are indebted to the tireless and creative efforts of all the committee members that made ACII 2021 possible. At a time where the covid-19 pandemic has affected us all, the outstanding community service of so many has been greatly appreciated. The Program Committee handled the review process for 123 submissions and arranged the week's events. They were aided by over 270 reviewers. The Chairs and organizers of the doctoral consortium, special sessions, workshops, and the demos made critical contributions. Virtual organization chairs and Sponsorship Chairs, Publicity and Social Media Chairs, Publication Chairs, Web Chairs, and the Senior Program Committee all provided essential service.

Sincerely,

Nadia Bianchi-Berthouze, Shiro Kumano, Mohammad Soleymani, Kenji Suzuki: General Chairs
Ginevra Castellano, Emily Mower Provost, Akane Sano: Program Chairs
<https://acii-conf.net/2021>

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ACII 2021 Conference Program

All times shown in Eastern Daylight Time (GMT/UTC -4)

Keynotes at a Glance

Wednesday, September 29, 2021, 10:00 - 11:15

Joanna Bryson

“Robots, Love, and Human Relations: Transparency and Consent with Commercial Products”

Thursday, September 30, 2021, 10:30 – 11:45

Natasha Schüll

“Attention by Design: Course-Corrections for Wandering Minds”

Friday, October 1, 2021, 10:20 - 11:35

Cynthia Breazeal

“Emotion, Social Robots and a New Human-Robot Relationship”

ACII 2021 Keynotes

Prof. Joanna Bryson

“Robots, Love, and Human Relations: Transparency and Consent with Commercial Products”



From its beginning, the project of AI has been both about making machines more intelligent, and understanding human and other animal intelligence through modelling it on machines. What does it tell us about our lives, our morality, and our relationships to governments and corporations that individuals want to be “companions” with designed artefacts? What are the obligations of those of us who design the artefacts they love? This talk discusses:

- the biology of love,
- the morality of consent,
- the reason we use governments to regulate corporations,
- why the OECD and EU have decided AI must be transparent, and
- how much fun we can have anyway.

Joanna J. Bryson is an academic recognized for broad expertise on intelligence, its nature, and its consequences. She advises governments, transnational agencies, and NGOs globally, particularly in AI policy. She holds two degrees each in psychology and AI (BA Chicago, MSc & MPhil Edinburgh, PhD MIT). Her work has appeared in venues ranging from reddit to the journal Science. From 2002-19 she was Computer Science faculty at the University of Bath; she has also been affiliated with Harvard Psychology, Oxford Anthropology, The Mannheim Centre for Social Science Research, The Konrad Lorenz Institute for Evolution and Cognition Research, and the Princeton Center for Information Technology Policy. During her PhD she first observed the confusion generated by anthropomorphised AI, leading to her first AI ethics publication “Just Another Artifact” in 1998. She has remained active in the field including coauthoring the first national-level AI ethics policy, the UK’s (2011) Principles of Robotics. She continues to research both the systems engineering of AI and the cognitive science of intelligence, with present focusses on the impact of technology on human cooperation, and new models of governance for AI and ICT. She is presently the Hertie School’s Professor of Ethics and Technology, a position she took up on 1 February 2020.

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Prof. Natasha Schüll

“Attention by Design: Course-Corrections for Wandering Minds”



A strong social consensus has formed around the association between digital technology and toxic psychological effects, with a notable emphasis on themes of distraction, addiction, and exhaustion. Although digital technologies might extend human communicational range, expand experiential horizons, and afford new modes of self-expression, their intensified temporalities and relentless demands for sensory and cognitive engagement pull us into coercive loops of escape and self-forgetting and exhaust our capacity to resist. Yet a new crop of technologies promise to promote wellbeing by helping beleaguered humans guard against, counteract, or “detox” from toxic tech. These attention-protecting, attention-boosting, attention-enabling technologies run the gamut from smart timers and notification filters to distraction-reducing computer software and course-correcting wearable devices designed to sense, and some times intervene, in users’ mental states. This talk parses the design logics of three such devices — the Muse headset, AttentiveU glasses, and the FeelZing patch. *According to what conception of attention does each device operate? What attentional interventions does each make? What kind of attentional subjects do its features and functions address, enable, and, perhaps, bring into being?* Considered together and in contrast, their respective formulae for promoting attentional wellbeing reveal tensions and fissures in the dominant attentional logics of the day and raise a set of ethical questions for the future of attention modulation.

Natasha Schüll is a cultural anthropologist and associate professor in the Department of Media, Culture, and Communication at New York University. Her 2012 book, *Addiction by Design*, parses the intimate relationship between the experience of gambling addiction and casino industry design tactics, showing how architectural, atmospheric, ergonomic, audiovisual, and algorithmic-computational techniques are marshalled to suspend—and monetize—gamblers’ attention. Her current book project, “Keeping Track,” explores the rise of sensor-based, digital technologies of the self and the new modes of introspection, self-care, and self-regulation they offer. Her documentary film, *Buffet: All You Can Eat Las Vegas*, has screened multiple times on PBS and appeared in numerous film festivals. Her research and op-eds have been featured in 60 Minutes, *The New York Times*, *The Economist*, *The Atlantic*, *The Washington Post*, *The Financial Times*, Salon, NPR, WGBH and WNYC.

Prof. Cynthia Breazeal

“Emotion, Social Robots and a New Human-Robot Relationship”



People have welcomed conversational AI technologies into our homes, workplaces, and institutions where we interact with them on a daily basis. The proliferation of digital assistants in a multitude of embodiments (e.g. speakers, displays, avatars, robots) in human environments over extended periods of time provides us with new ways to investigate, develop and assess the design of personified AIs that emotionally engage and support people to promote human flourishing across a wide range of applications and usage contexts. In this talk, I highlight a number of research projects where we are developing, fielding, and assessing social robots in homes, schools, and hospitals. We explore different embodiments and develop adaptive algorithmic capabilities for our robots to sustain interpersonal engagement and personalize to people’s needs to support novel interventions in education and wellness. In addition to evaluating the impact of these capabilities and features on improving learning, sustaining engagement, nudging behavior, and shifting attitudes — we are also examining the nature of the relationship that people form with these personified AI technologies and how it contributes to these impacts. We conclude by reflecting on the ethical and responsible design of intelligent technologies that emotionally engage and build relationships with people.

Cynthia Breazeal is a Professor at the MIT Media Lab where she founded and directs the Personal Robots Group. She is also Associate Director of the Media Lab in charge of new strategic initiatives and Director of MIT’s initiative on Responsible AI for Social Empowerment and Education (RAISE). She is a pioneer in the

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field of social robotics and human-robot interaction. Her research focuses on the design and real-world impact of personalized and emotionally engaging personified AI technologies that promote personal growth, learning, creativity and flourishing by people of all ages. She is author of the seminal book 'Designing Sociable Robots,' named a AAAI Fellow, and is a recipient of the George R. Stibitz Computer & Communications Pioneer Award. She has spoken at prestigious venues such as TED, CES, SXSW, the World Economic Forum, and the United Nations on topics related to AI, innovation, and society. She is globally recognized as an award-winning innovator, designer, and entrepreneur. Her work has been recognized by the National Academy of Engineering, the National Design Awards, and Technology Review's TR100/35 Award. She was founder, Chief Scientist and Chief Experience Officer of the mass consumer home robotics startup, Jibo, Inc. whose eponymous robot received numerous design and innovation awards by CES, Fast Company, Core 77, and was featured on the cover of TIME magazine as part of the 2017 Best Inventions Awards. She received her doctorate from MIT in Electrical Engineering and Computer Science in 2000.

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Week's Schedule at a Glance

Tuesday, September 28, 2021	Wednesday, September 29, 2021	Thursday, September 30, 2021	Friday, October 1, 2021
Tutorials/Workshops	Main Conference	Main Conference	Main Conference
Break			
Tutorials/Workshops	Main Conference	Main Conference	Main Conference

Tuesday's Schedule at a Glance (Tutorials & Workshops)

Hour (EDT)	Tutorial 1 Ethical Issues	Tutorial 2 Research Methods	Tutorial 3 Wearable Devices	Workshop AMAR 21	Workshop Func-E	Workshop MA3HMI	Workshop AffectMove	Workshop BPAC	Workshop What's Next
6:00									
7:00									
8:00						Starts@8:30			
9:00									
10:00									
11:00							Ends@11:30		
12:00									
13:00									Ends@1:30
14:00				Ends@14:45					
15:00									
16:00									
17:00									

Tutorials:

- **Tutorial 1:** Ethical Issues in Affective Computing – The Nudge of Virtual Affective Agents
- **Tutorial 2:** Research Methods and Basic Statistical Analysis for Affective Computing
- **Tutorial 3:** Sensing Affective States Through Wearable Devices

Workshops:

- Workshop on Applied Multimodal Affect Recognition (**AMAR 2021**)
- Functions of Emotions for Socially Interactive Agents (**Func-E Workshop**)
- 5th International Workshop on Multimodal Analyses Enabling Artificial Agents in Human-Machine Interaction (**MA3HMI 2021**)
- Affective Movement Recognition Challenge and Workshop (**AffectMove 2021**)
- Broadening Participation in Affective Computing – Undergraduate Reserch & Teaching Strategies (**BPAC Workshop**)
- What's Next in Affect Modeling

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Main Conference Schedule at a Glance

	Wednesday, September 29, 2021	
8:00-8:30	Opening Ceremony	
8:30-9:30	Session 1: Dataset and In-the-Wild Modelling	Session 2: Positive Emotions
9:30-10:00	Kick-off Social Event	
10:00-11:00	Keynote 1 – Joanna Bryson (Chair: Akane Sano)	
11:00-11:30	Break	
11:30-12:30	Session 3: Machine Learning	Session 4: Physiological Data Modelling
12:30-14:00	Poster Session 1, Doctoral Consortium Posters 1 & Demo Session 1	

	Thursday, September 30, 2021	
8:00-9:30	Poster Session 2, Doctoral Consortium Posters 2 & Demo Session 2	
9:30-10:30	Panel: Ethics of Affective Computing (Chair: Jonathan Gratch)	
10:30-11:30	Keynote 2 – Natasha Schüll (Chair: Emily Provost)	
11:30-12:00	Break	
12:00-13:00	Topic-themed Social Event	
13:00-14:00	Session 5: Ethics and Bias	Session 6: Emotion Recognition in Action

	Friday, October 1, 2021	
8:00-9:20	Session 7: Special Session Ordinal Affective Computing	Session 8: Emotion Prediction
9:20-9:50	TAC Best Paper Presentation Awards	
9:50-10:20	Topic-themed Social Event	
10:20-11:20	Keynote 3 – Cynthia Breazeal (Chair: Ginevra Castellano)	
11:20-11:35	Break	
11:35-12:50	Award ceremony and AAAC Town Hall	
12:50-13:50	Session 9: Privacy and Risk Mitigation	
13:50-14:00	Closing remarks	

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Tuesday, September 28, 2021

Tutorial 1: Ethical Issues in Affective Computing – The Nudge of Virtual Affective Agents

Presenter: **Prof. Laurence Devillers**
Sorbonne University and CNRS-LIMSI

Time: 8:00 – 11:00 EDT (Half-day - Morning)

Tutorial Description:

Scientific results in affective computing and the first products such as speech analytics (emotion detection) in call centers, sentiment analysis in website, or affective robot for elderly people inspire questions around the ethics, the goals and the deployment of innovative products that can change our lives and consequently, the society. The emergence of such systems that keep us more and more connected to machines will modify the way we socialize, our reasoning capabilities and our behavior. This technology promises new forms of affective relations and interactions, as well as new market opportunities. Affective computing systems have a large field of applications: conversational agent, robot, e-bot, etc. Such systems are envisioned to interact with humans (with children, adults and frail people such as, for example, very young children, autistic or the elderly) in a seamless non-verbal and verbal dialogue in a variety of real-life contexts such as at home, at the hospital, on your phone, in your car, in the classroom, in public transports with different roles such as assistive, companion or still seller systems. Such systems are also envisioned to survey humans for safety reasons (for example, in the car). The deployment of such affective technology will lead to profound modifications of the way people interact with systems. Achieving seamless multimodal interaction with multiple people and planning for executing system speech, movement, expressions or still gestures in response to observed and interpreted user behavior requires an inherently multidisciplinary approach. We need a new interdisciplinary mix of computer science, social/psychological sciences and engineering to understand such affective interaction, and the substantial impact of affective computing systems

will have in terms of new applications.

As researchers in the affective computing community, it is important for us to have these discussions and to enlarge our community.

The tutorial will be divided into three parts:

1. Main ethical issues in affective computing
2. Affective Machines and the nudge: the HUMAINE chair (L. Devillers)
3. Questionnaires and ethical committees.

About the Presenter: *Laurence Devillers* is a full Professor of Artificial Intelligence at Sorbonne University (PIV) and heads the team of research “Affective and social dimensions in Spoken interaction with(ro)bots: ethical issues”(since 2004) at CNRS-LIMSI. Her HDR (habilitation dissertation) in Computer Science in 2006 was about “Emotion in interaction: Perception, detection and generation” at University Paris-Orsay, France. Since 2020, she heads the interdisciplinary Chair on Artificial Intelligence HUMAINE: HUMAN-MACHINE AFFECTIVE INTERACTION & ETHICS (2020-24) at CNRS (<http://humaaine-chaireia.fr>).

Tutorial 2: Research Methods and Basic Statistical Analysis For Affective Computing

Presenter: **Prof. Gale M. Lucas**
University of Southern California

Time: 11:00 – 14:00 EDT (Half-day – Mid-day)

Tutorial Description: The proposed tutorial will cover a number of topics relevant to research methods and basic statistical analysis for running user studies in affective computing. Outlined below are key topics that will be covered during the tutorial:

- Formulating a research question
- Operationalization of variables
- Independent vs. dependent variables
- Measurement of different variables
- Experiments vs. correlational research (vs. mixed)
- Between-subjects vs. within-subjects designs (vs. mixed)
- Null hypothesis statistical testing
- Statistical power
- Choosing the appropriate statistical test
- Moderation vs. mediation

There will be subtopics under several of these broad topics, as well. To teach these topics, participants will be engaged using lecture, call-and-answer, voting, as

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well as participation in a “toy” research study (for use as a hands-on example for design and analysis).

About the Presenter: *Gale Lucas* is a research assistant professor at the University of Southern California in the Viterbi School of Engineering and works at the USC Institute for Creative Technologies (ICT). She obtained her BA from Willamette University in 2005 and her PhD from Northwestern University in 2010. After teaching for a couple of years at small liberal arts colleges, she went back for a post-doc. She completed her post-doc with Dr. Jon Gratch at ICT, and then stayed on at ICT as a senior research associate. She works in the areas of human-computer interaction, affective computing, and trust-in-automation. Her research focuses on rapport, disclosure, trust, persuasion, and negotiation with virtual agents and social robots.

Tutorial 3: Sensing Affective States Through Wearable Devices

Presenters: **Prof. Vivian Motti**
George Mason University
and Prof. Vânia Neris
Federal University of Sao Carlos

Time: 8:00 – 11:00 EDT (Half-day - Morning)

Tutorial Description: The recognition of affective states using wearable sensors has become increasingly important to address mental health crises. The development and deployment of affective computing applications aim to address a growing need for interventions that facilitate the delivery of mental health services, reducing their costs, increasing access, and reducing stigma as well. Mobile sensing through wearables, smartphones, and pervasive computing enables applications to sense, monitor, and recognize users’ affective states, besides also delivering personalized interventions on demand. In this tutorial, we present attendees an overview of wearable sensing. First, we will contextualize the research and practice on wearable sensing for affect recognition. Then, we will describe data sources, signals and sensors used in affect recognition. We will explain the machine learning, models, tools and frameworks employed to classify data from users and their environments aiming to recognize affective states. Lastly, we will conclude the tutorial with a discussion about ethics, fairness, bias as well as the trade-offs and evaluation criteria involved in each

approach. Knowing that open questions remain in the domain, for instance to ensure that recognition models are accurate in the classification process, and that potential risks for users’ privacy and safety are reduced, we will give attendees the opportunity to discuss and reflect about current applications, incentivizing a critical debate over the implementation and deployment of services that are optimized to collect essential data to preserve users’ privacy, to provide accurate classifications, to minimize risks, and to personalize interventions to meet individual’s needs.

About the Presenters: *Dr. Motti* is an Assistant Professor on Human Computer Interaction in the Department of Information Sciences and Technology at George Mason University where she leads the Human Centric Design Lab. Her research interests lie on wearable computing, assistive technologies, and emotion regulation. *Dr. Neris* is an Associate Professor on Human Computer Interaction in the Department of Computing at Federal University of Sao Carlos, in Brazil, where she leads the Flexible and Sustainable Interaction Lab. Her research interests lie on computer support for mental health and well-being, and adaptive and adaptable user interfaces.

Second Workshop on Applied Multimodal Affect Recognition (AMAR 2021)

Organizers: Shaun Canavan
Tempestt Neal
Marvin Andujar
Lijun Yin

Time: 9:00 – 14:45 EDT (Full Day)

9:00 - 9:10 Welcome and Opening Remarks

9:15 - 10:00 Keynote 1 – Michel Valstar

10:00 - 10:15

1. Quantifying the Intensity of Toxicity for Discussion and Speakers; *S. Samrose and E. Hoque*

10:15 - 10:30

2. Real-time Ubiquitous Pain Recognition; *I. Tynes and S. Canavan*

10:30 - 10:40 Coffee Break 1

10:40 - 11:25 Keynote 2 – Ehsan Hoque

11:25-11:40

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3. HirePreter: A Framework for Providing Fine-grained Interpretation for Automated Job Interview Analysis; *W. Rahman, S. Mahbub, A. Salekin, Md K. Hasan and E. Hoque*

11:40 - 11:55

4. Attentive Cross-modal Connections for Deep Multimodal Wearable-based Emotion Recognition; *A. Bhatti, B. Behinaein, D. Rodenburg, P. Hungler and A. Etemad*

11:55 - 12:05 Coffee Break 2

12:05 - 12:50 Keynote 3 – Mohamed Daoudi
“Face and Body Shape Analysis with Application in Emotion Recognition and Well-Being”

12:50 - 13:00 Defining Breakout Groups

13:00 - 13:45 Breakout Group Meetings

13:45 - 14:30 Breakout Group Reporting

14:30 - 14:45 Closing/Compilation

Functions of Emotions For Socially Interactive Agents (Func-E)

Organizers: Elisabeth Andre´
Ruth Aylett
Patrick Gebhard
Dimitra Tsovaltzi
Tanja Schneeberger

Time: 6:00 – 11:00 EDT (Half-day - Morning)

6:00 - 6:15 Intro

6:15 - 6:55 Invited Talk I
What Is That Thing “Emotion”
Arvid Kappas

6:55 - 7:00 Short Break

7:00 – 8:00 Concept-/Theory-Oriented Talks

1. Emotions in Socio-cultural Interactive AI Agents, *Aarti Malhotra and Jesse Hoey*
2. Robot mirroring: Improving well-being by fostering empathy with an artificial agent representing the self, *David Antonio Gómez Jáuregui, Felix Dollack and Monica Perusquía-Hernández*

3. Understanding Shame Signals: Functions of Smile and Laughter in the Context of Shame, *Mirella Hladky, Tanja Schneeberger and Patrick Gebhard*

4. Economic and Social Consequences of Anger and Gender in Computer-Mediated Negotiations: Is there a Backlash Against Angry Females?
Janet Wessler

5. Socially-Aware Personality Adaptation, *Thomas Kiderle, Hannes Ritschel, Kathrin Janowski, Silvan Mertes, Florian Lingerfelser and Elisabeth André*

6. Individual Differences and the Function of Emotions in Socio-Emotional and Cognitive Conflict: If an agent shames you, will you still be bored?
Lara Chebayeb, Dimitra Tsovaltzi, Rhythm Arora and Patrick Gebhard

7. Emotional Paraphrasing Using Pre-trained Language Models, *Jacky Casas, Samuel Torche, Karl Daher, Elena Mugellini and Omar Abou Khaled*

8:00 - 8:15 General Group Discussion

8:15 - 9:00 Long Break

9:00 - 9:40 Invited Talk II
Functions of Emotions – The Basis of Human’s Well-being
Jana Volkert

9:40 - 9:45 Short Break

9:45 – 10:35 Technical-/Application-Oriented Talks

8. On the Potential of Modular Voice Conversion for Virtual Agents, *Silvan Mertes, Thomas Kiderle, Ruben Schlagowski, Florian Lingerfelser and Elisabeth André*

9. Relationship Between Mood Improvement and Questioning to Evaluate Automatic Thoughts in Cognitive Restructuring With a Virtual Agent, *Kazuhiko Shidara, Hiroki Tanaka, Hiroyoshi Adachi, Daisuke Kanayama, Yukako Sakagami, Takashi Kudo and Satoshi Nakamura*

10. Simulating Fear as Anticipation of Temporal Differences: An Experimental Investigation, *Laduona Dai and Joost Broekens*

11. Implementing Parallel and Independent Movements for a Social Robot’s Affective Expressions, *Hannes Ritschel, Thomas Kiderle and Elisabeth André*

10:35 - 10:50 General Group Discussion

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10:50 - 11:00: Wrap-up

5th International Workshop on Multimodal Analyses Enabling Artificial Agents in Human-Machine Interaction (MA3HMI 2021)

Organizers: Ronald Böck
Ronald Poppe
Francesca Bonin

Time: 8:30 – 14:00 EDT (Full Day)

8:30 - 9:00 Opening

9:00 - 10:00 **Keynote 1 – Jan Gugenheimer**
“Ubiquitous Mixed Reality: Designing Mixed Reality Technology to Fit into the Fabric of Our Daily Lives”

10:00 - 11:30 **Session 1**

1. Eliciting Confusion in Online Conversational Tasks,
N. Kaushik, R. Bailey, A. Ororbia, C. Alm
2. Towards understanding confusion and affective states under communication failures in voice-based human-machine interaction,
S. Kim, A. Garlapati, J. Lubin, A. Tamrakar, A. Divakaran
3. A simple baseline for evaluating Expression Transfer and Anonymisation in Video Transfer,
G. Haddon-Hill, K. Kusumam, M. Valstar

11:30 - 12:00 **Break**

12:00 - 13:00 **Keynote 2 – Emily Mower Provost**
“Modeling Emotional Speech in the Real World”

13:00 - 14:00 **Session 2**

4. Comparison of Head and Body Movement Patterns in Naturalistic Human-Machine Interaction,
J. Bützner, R. Böck
5. Discrete versus Ordinal Time-Continuous Believability Assessment,
C. Pacheco, D. Melhart, A. Liapis, G.N. Yannakakis, D. Perez-Liebana

14:00 - Closing

Affective Movement Recognition Challenge and Workshop (AffectMove)

Organizers: Temitayo Olugbade
Nadia Bianchi-Berthouze
Amanda Williams
Nicolas Gold
Gualtiero Volpe
Antonio Camurri
Roberto Sagoleo
Simone Ghisio
Beatrice de Gelder

Time: 8:00 -11:30 EDT (Half-day, Morning)

8:00 - 8:05 Opening

8:05 - 8:45 **Keynote 1 – Prof. Beatrice de Gelder**

8:45 - 9:30 **Challenge Paper Presentations**

1. Multimodal Convolutional Neural Network Model for Protective Behavior Detection based on Body Movement Data,
Kim Ngan Phan, Soo-Hyung Kim, Hyung-Jeong Yang, and Guee-Sang Lee
2. Comparison of Deep Learning Approaches for Protective Behaviour Detection Under Class Imbalance from MoCap and EMG data,
Karim Radouane, Andon Tchechmedjiev, Binbin Xu, and Sebastien Harispe
3. Keep it Simple: Handcrafting Feature and Tuning Random Forests and XGBoost to face the Affective Movement Recognition Challenge 2021,
Vincenzo D'Amato, Luca Oneto, Antonio Camurri, and Davide Anguita

9:30 - 9:40 **Coffee Break**

9:40 - 10:10 **Challenge Paper Presentations**

4. The AffectMove Challenge: Some machine learning approaches,
Gerard Dray, Pierre-Antoine Jean, Yann Mabeu, Jacky Montmain, and Nicolas Sutton-Charani
5. Task-based Classification of Reflective Thinking using Mixture of Classifiers,
Saandeep Aathreya, Shivam Srivastava, Saurabh Hinduja, and Shaun Canavan

10:10 - 10:50 **Keynote 2 – Prof. Thecla Schiphorst**

10:50 - 11:20 **Panel Discussion With Keynote Speakers**

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Panelists: Dr. Marta Bienkiewicz
Dr. Mårten Björkman
Dr. Gualtiero Volpe
Dr. Erwin Schoonderwaldt
Ben Bland

11:20 - 11:25 **Announcement of Challenge Winner**

11:25 - 11:30 **Closing Remarks**

Broadening Participation in Affective Computing – Undergraduate Research & Teaching Strategies (BPAC 2021)

Overview paper available on page 27

Organizers: Jerome McClendon
Marlon Mejias
Shani Daily
Gloria Washington

Time: 13:00 – 17:00 EDT (Half-day, Afternoon)

13:00 - 13:30 **Welcome & Keynote – Ehi Nosakhare**

13:40 - 14:10 **Undergraduate Curriculum Discussion**

Speakers – *Shani Daily, Jerome McClendon and Gloria Washington*
Moderator – *Marlon Mejias*

Exploring undergraduate affective computing research and education strategies and examples in action.

14:15 - 15:00 **Funding Research in Affective Computing**

Speaker – *Prabha Balakrishnan*
Moderator – *Jerome McClendon*

Exploring where affective computing research is mainly funded in the NSF and internationally. Session will be interactive with NSF Program Directors; will also talk about programs available to international collaborators.

15:00 - 15:45 **Breakout Session - Privacy, Ethics & Bias in Affective Computing: Opportunities for New Technologies**

15:45 - 16:25 **Research Highlights from Undergrad and Grad Projects**

Speakers – *Nicole Sullivan, Cree St. Juste and Lucretia Williams*
Moderator – *Bryant*

16:30 - 17:00 **Wrap-up**

What's Next in Affect Modeling?

Organizers: Konstantinos Makantasis
Georgios N. Yannakakis
Bjoern Schuller

Time: 9:00 – 13:30 EDT (Half-day, Morning)

9:00 - 9:10 **Introduction**

9:10 – 11:10 **Paper Presentations**

1. Embracing and Exploiting Annotator Emotional Subjectivity: An Affective Rater Ensemble Model
2. AffRankNet+: Ranking Affect Using Privileged Information
3. Go-Blend Behavior and Affect
4. AffectGAN: Affect-Based Generative Art Driven by Semantics
5. Dream Net: a privacy preserving continual learning model for face emotion recognition
6. Temporal conditional Wasserstein GANs for audio-visual affect-related ties

11:10 - 11:30 **Break**

11:30 - 12:30 **Keynote – Prof. Michel Valstar**
“Affective Computing in medical applications: confidence, risk, and ethical issues”

12:30 – 13:30 **Paper Presentations**

1. Temporal based Emotion Recognition, inspired by Activity Recognition models
2. Modeling Emotions as Latent Representations of Appraisals
3. Emotion-Aware Transformer Encoder for Empathetic Dialogue Generation

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***All times shown in Eastern Daylight Time
(GMT/UTC -4)***

Wednesday, September 29, 2021

8:00 - 8:30 Opening

8:30 - 9:30 Dataset and In the Wild Modelling
(Session 1)

Chair: Hatice Gunes

1. Multimodal Human-Agent Dialogue Corpus with Annotations at Utterance and Dialogue Levels
Kazunori Komatani, Shogo Okada (Osaka University, Japan Advanced Institute of Science and Technology, Japan)
2. An Open Dataset for Impression Recognition from Multimodal Bodily Responses, *Chen Wang and Guillaume Chanel (University of Geneva, Switzerland)*
3. Eye Blink Rate Based Detection of Cognitive Impairment Using In-the-wild Data, *Fatimah Alzahrani, Bahman Mirheidari, Daniel Blackburn, Steve Maddock and Heidi Christensen (University of Sheffield, UK)*

8:30 - 9:30 Positive Emotions (Session 2)

Chair: Chloe Clavel

1. Dimensional perception of a 'smiling McGurk effect', *Ilaria Torre, Simon Holke, Emma Carrigan, Iolanda Leite, Rachel McDonnell and Naomi Harte (KTH Royal Institute of Technology, Sweden; Trinity College Dublin, Ireland)*
2. Exploring the Effects of Virtual Agents' Smiles on Human-Agent Interaction: A Mixed-Methods Study, *Ilaria Torre, Sylvaine Tuncer, Daniel McDuff and Mary Czervinski (KTH Royal Institute of Technology, Microsoft Research)*
3. How Familiarity Influences the Frequency, Temporal Dynamics and Acoustics of Laughter, *Michel-Pierre Jansen, Khiet Phuong Truong and Dirk K.J. Heylen (University of Twente, Netherlands)*

9:30 - 10:00 Kick-off Social Event

10:00 - 11:00 Keynote: Joanna Bryson

Chair: Akane Sano

11:00 - 11:30 Coffee Break

11:30 - 12:30 Machine Learning (Session 3)

Chair: Laurence Devillers

1. Using Knowledge-Embedded Attention to Augment Pre-trained Language Models for Fine-Grained Emotion Recognition, *Varsha Suresh, Desmond C. Ong (National University of Singapore, Singapore)*
2. Contrastive Learning for Domain Transfer in Cross-Corpus Emotion Recognition, *Yufeng Yin, Liupei Lu, Yao Xiao, Zhi Xu, Kaijie Cai, Haonan Jiang, Jonathan Gratch and Mohammad Soleymani (University of Southern California, USA)*
3. Towards Noise Robust Speech Emotion Recognition Using Dynamic Layer Customization, *Alex Wilf, Emily Mower Provost (University of Michigan, USA)*

11:30 - 12:30 Physiological Data Modelling
(Session 4)

Chair: Ali Etemad

1. Multi-modal emotion recognition using recurrence plots and transfer learning on physiological signals, *Rayan Elalamy, Marios Fanourakis and Guillaume Chanel (University of Geneva, Switzerland)*
2. Toward Intelligent Car Comfort Sensing: New Dataset and Analysis of Annotated Physiological Metrics, *Temitayo Olugbade, Youngjun Cho, Zak Morgan, Mohamed Abd El Ghani and Nadia Bianchi-Berthouze (University College London; Bentley Motors Limited, UK)*
3. Automatic Recognition of Flow During Work Activities Using Context and Physiological Signals. *Elena Di Lascio, Shkurta Gashi, Maike E. Debus and Silvia Santini Güçlütürk (Università della Svizzera italiana (USI); Université de Neuchâtel, Switzerland)*

12:30 - 14:00 Poster Session 1

Chair: Houwei Cao

1. Modality Fusion Network and Personalized Attention in Momentary Stress Detection in the Wild, *Han Yu, Thomas Vaessen, Inez Myin-Germeyns and Akane Sano (Rice University, USA; KU Leuven, Belgium)*
2. Dealing with a Missing Sensor in a Multilabel and Multimodal Automatic Affective States

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- Recognition System, *Jesús Joel Rivas, Felipe Oribuela-Espina, Luis Enrique Sucar and Nadia Bianchi-Berthouze (Instituto Nacional de Astrofísica, Óptica y Electrónica (INAOE), Mexico; University College of London (UCL), UK)*
3. Generative Approach using Soft-Labels to Learn Uncertainty in Predicting Emotional, *Kusha Sridhar, Wei-Cheng Lin and Carlos Busso (The University of Texas at Dallas, USA)*
 4. Enhancing Multimodal Affect Recognition with Multi-Task Affective Dynamics Modeling, *Nathan Henderson, Wookhee Min, Jonathan Rowe and James Lester (North Carolina State University, USA)*
 5. Analysis of Eye Fixations During Emotion Recognition in Talking Faces, *Houwei Cao and Forest Elliott (New York Institute of Technology, USA; Oberlin College, USA)*
 6. Negative emotional dynamics shape cognition and performance with MetaTutor: Toward building affect-aware systems, *Elizabeth B. Cloude, Franz Wortha, Daryn A. Dever and Roger Azevedo (University of Central Florida, USA; Universität Greifswald, Germany)*
 7. Spatiotemporal Contrastive Learning of Facial Expressions in Videos, *Shuvendu Roy and Ali Etemad (Queen's University, Canada)*
 8. Investigation into Recognizing Context Over Time using Physiological Signals, *Saurabh Hinduja, Gurmeet Kaur and Shaun Canavan (University of South Florida, USA)*
 9. Detecting Inspiring Content on Social Media, *Oana Ignat, Y-Lan Boureau, Jane Yu and Alon Halevy (University of Michigan, USA; Facebook AI, USA)*
 10. Towards Classifying Human Circadian Rhythm Using Multiple Modalities, *Kais Riani, Salem Sharak, Kapotaksha Das, Mohamed Abouelenien, Mihai Burzo, Rada Mihalcea, John Elson, Clay Maranville, Kwaku Prakah-Asante and Waqas Manzoor (University of Michigan, USA; Ford, USA)*
 11. Deep Recurrent Semi-Supervised EEG Representation Learning for Emotion Recognition, *Guangyi Zhang and Ali Etemad (Queen's University, Canada)*
 12. Emotion Regulation for Neurodiversity through Wearable Technology, *Niloofar Kalantari, Hui Zheng, Heidi J. Graff, Anna S. Evmenova and Vivian Genaro Motti (George Mason University, USA)*
 13. Stressors and Algorithms Used for Stress Detection: a Review, *Tatiana Andrea Roldan-Rojo, Elizabeth Rendón-Velez, and Susana Carriazo, (Universidad EAFIT, Colombia)*
- 12:30 - 14:00 Doctoral Consortium**
1. A Multimodal Engagement-Aware Recommender System for People with Dementia, *Lars Steinert (University of Bremen)*
 2. Using Multimodal Transformers in Affective Computing, *Juan Vazquez-Rodriguez (Univ. Grenoble Alpes)*
 3. Modeling the Induction of Psychosocial Stress in Virtual Reality Simulations, *Celia Kessassi, (IMT-Atlantique)*
 4. Emotion Recognition In Emergency Call Centers: The challenge of real-life emotions, *Théo Deschamps-Berger (CNRS - Paris-Saclay University)*
 5. A therapeutic dialogue agent for Polish language, *Artur Zygodło (Warsaw University of Technology)*
 6. In-Corpo-Real Robot-Dreams: Empathy, Skin, and Boundaries, *Dominika Lisy (Linköping University)*
 7. Detection of Nudges and Measuring of Alignment in Spoken Interactions, *Natalia Kalashnikova, (LISN-CNRS - University Paris-Saclay)*
 8. emoPaint: Exploring Emotion and Art in a VR-based Creativity Tool, *Jungah Son (University of California, Santa Barbara)*
 9. An Affect as Interaction Approach for Stress Management Among Paramedics, *Akiri Surehy, (University of Maryland Baltimore County)*
 10. Fantastic Ideas and Where to Find Them: Elevating Creativity in Self-organizing Social

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Networks, *Raiyan Abdul Baten, (University of Rochester)*

12:30 - 14:00 Demos

1. SUGO-MIMI: A Waggle Ear-Type Device Linked to Eyebrow, *Shoko Kimura, Ayaka Fujii, Seiichi Harata, Takuto Sakuma and Shobei Kato (Nagoya Institute of Technology, The University of Tokyo)*
2. Job Interview Training System using Multimodal Behavior Analysis, *Nao Takeuchi and Tomoko Koda (OSAKA INSTITUTE OF TECHNOLOGY)*
3. Visualization of social emotional appraisal process of an agent, *Motoaki Sato, Kazunori Terada and Jonathan Gratch (Gifu University, USC)*
4. A system for collecting emotionally annotated physiological signals in daily life using wearables, *Stanisław Saganowski, Maciej Behnke, Joanna Komoszyńska, Dominika Kunc, Bartosz Perz and Przemysław Kazienko (Wrocław University of Science and Technology)*
5. Event Representation and Semantics Processing System for F-2 Companion Robot, *Artemiy Kotor, Nikita Arinkin, Alexander Filatov, Lindmila Zaidelman, Anna Zinina and Kirill Kivva (Kurchatov Institute)*
6. Unbiased Mimic Activity Evaluation: F2F Emotion Studio Software, *Mikhail Baev, Alexey Gusev and Alexander Kremlev (Face to Face)*

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Thursday, September 30, 2021

8:00 - 9:30 Poster Session 2

Chair: Ilaria Torre

1. Empirical Research in Affective Computing: An Analysis of Research Practices and Recommendations, *Janet Wessler, Tanja Schneeberger, Bernhard Hilpert, Alexandra Alles and Patrick Gebhard (Saarland University, Deutsches Forschungszentrum für Künstliche Intelligenz GmbH (DFKI), Germany)*
2. Trace It Like You Believe It: Time-Continuous Believability Prediction, *Cristiana Pacheco, David Melbart, Antonios Liapis, Georgios N. Yannakakis and Diego Perez-Liebana (Queen Mary University of London, UK; Institute of Digital Games, University of Malta, Malta)*
3. Don't Judge Me by My Face: An Indirect Adversarial Approach to Remove Sensitive Information From Multimodal Neural Representation in Asynchronous Job Video Interviews, *Léo Hemamou, Arthur Guillon, Jean-Claude Martin and Chloé Clavel (LIMSI, CNRS, Paris-Sud University, Paris-Saclay University / F-91405 Orsay, France; Easyrecrue; LTCl, Télécom Paris, Paris-Saclay University / F-75013 Paris, France)*
4. Multi-dimensional Affect in Poetry (POCA) Dataset: Acquisition, Annotation and Baseline Results, *Akbar Khan, Jack Hopkins and Hatice Gunes (University of Cambridge, UK)*
5. I Feel it in Your Fingers: Inference of Self-Assessed Personality Traits from Keystroke Dynamics in Dyadic Interactive Chats, *Abeer Buker and Alessandro Vinciarelli (University of Glasgow, Scotland)*
6. TURIN: A coding system for Trust in hUman Robot INteraction, *Marc Hulcelle, Giovanna Varni, Nicolas Rollet and Chloé Clavel (Télécom Paris, France)*
7. An Emotion-Oriented Problem Space for UI Adaptation: From a Literature Review to a Conceptual Framework, *Mina Alipour, Sophie Dupuy-Chessa and Éric Céret (University of Grenoble Alpes, France)*
8. Using Valence Emotion to Predict Group Cohesion's Dynamics: Top-down and Bottom-up Approaches, *Lucien Maman, Laurence Likforman-Sulem, Mohamed Chetouani, and Giovanna Varni (LTCl, Télécom Paris, Institut Polytechnique de Paris, France; Institute for Intelligent Systems and Robotics, Sorbonne University, CNRS UMR7222, France)*
9. End-to-End Speech Emotion Recognition: Challenges of Real-Life Emergency Call Centers Data Recordings, *Théo Deschamps-Berger, Lori Lamel and Laurence Devillers (LISN – CNRS, Sorbonne University, France)*
10. Recognizing Emotions evoked by Movies using Multitask Learning, *Hassan Hayat, Carles Ventura and Agata Lapedriza (Universitat Oberta de Catalunya, Spain)*
11. How ECA vs Human Leaders Affect the Perception of Transactive Memory System (TMS) in a Team, *Beatrice Biancardi, Patrick O'Toole, Ivan Giaccaglia, Brian Ravenet, Ian Pitt, Maurizio Mancini and Giovanna Varni (LTCl, Télécom Paris, Institut polytechnique de Paris, France; University College Cork, Ireland; Sapienza University of Rome, Italy)*
12. Investigation and ordinal modelling of vocal features for stress detection in speech, *George-Marios Kalatzantonakis-Jullien, Nikolaos Stefanakis and Giorgos Giannakakis (Hellenic Open University, Greece; Hellenic Mediterranean University, Greece; Foundation for Research and Technology – Hellas, Greece)*
13. Psychophysiological Effect of Immersive Spatial Audio Experience Enhanced Using Sound Field Synthesis, *Yasuhide Hyodo, Chihiro Sugai, Junya Suzuki, Masafumi Takahashi, Masahiko Koizumi, Asako Tomura, Yuki Mitsufuji and Yota Komoriya (Sony Group Corporation, Japan)*

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14. Gesture based fear recognition using non-performance dataset from VR horror games, *Xin Yi Fu, Cheng Xue, Qiu Yi Yin, Yu Jiang, Ye Li, Yi Chen Cai and Wei Lin Sun (Tsinghua University, China; Carnegie Mellon University, USA; George Washington University, USA; Beijing Forestry University, China)*

Lapedriza and Rosalind Picard (Universitat Oberta de Catalunya, Spain; Massachusetts Institute of Technology, USA)

3. Towards Emotion-Aware Agents For Negotiation Dialogues, *Kushal Chawla, Rene Clever, Jaysa Ramirez, Gale Lucas and Jonathan Gratch (University of Southern California, USA; CUNY Lehman College, Bronx, USA; Rollins College, Winter Park, USA)*

9:30-10:30 Panel: Ethics of Affective Computing
Chair: Jonathan Gratch

10:30 - 11:30 Keynote Natasha Schull
Chair: Emily Provost

11:30 - 12:00 Coffee Break

12:00 - 13:00 Topic-themed Social Event

13:00 - 14:00 Ethics and Bias (Session 5)
Chair: Mary Czerwinski

1. Mitigating the Bias of Heterogeneous Human Behavior in Affective Computing, *Shen Yan, Hsien-Te Kao, Kristina Lerman, Shri Narayanan and Emilio Ferrara (University of Southern California, USA)*
2. An Ethical Framework for Guiding the Development of Affectively-Aware Artificial Intelligence, *Desmond Ong (National University of Singapore & A*STAR)*
3. How diverse is the ACII community? Analysing gender, geographical and business diversity of Affective Computing research, *Isabelle Hupont, Songul Tolan, Ana Freire, Lorenzo Porcaro, Sara Estevez and Emilia Gómez (Joint Research Centre, European Commission; Universitat Pompeu Fabra, Spain)*

13:00 - 14:00 Emotion Recognition in Action
Chair: Khiet Truong

1. Modeling User Empathy Elicited by a Robot Storyteller, *Leena Mathur, Micol Spitale, Hao Xi, Jieyun Li and Maja Mataric (University of Southern California, USA; Politecnico di Milano, Italy)*
2. Predicting Driver Self-Reported Stress by Analyzing the Road Scene, *Cristina Bustos, Neska El-Haouij, Albert Sole-Ribalta, Javier Borge-Holthoefer, Agata*

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Friday, 1st October 2021

8:00 – 9:00 Special Session: Ordinal Affective Computing (Session 7)

Chair: Georgios N. Yannakakis

1. Architectural Form and Affect: A Spatiotemporal Study of Arousal, *Emmanouil Xylakis, Antonios Liapis and Georgios N. Yannakakis (Institute of Digital Games, University of Malta, Malta)*
2. Deep Explanatory Polytomous Item-Response Model for Predicting Idiosyncratic Affective Ratings, *Yan Zhou, Tsukasa Ishigaki and Shiro Kumano (University of Tsukuba, Japan; Tohoku University, Japan)*
3. Pairwise Ranking Network for Affect Recognition, *Georgios Zoumpourlis and Ioannis Patras (Queen Mary University of London, UK)*
4. Estimating continuous affect with uncertainty, *Niki Maria Foteinopoulou, Christos Tzelepis and Ioannis Patras (Queen Mary University of London, UK)*

8:00 - 9:20 Emotion Prediction (Session 8)

Chair: Desmond Ong

1. Can mood primitives predict apparent personality?, *Gizem Sogancioglu, Heysem Kaya and Albert Ali Salah (Utrecht niversity, The Netherlands)*
2. Towards a Deeper Modeling of Emotions: The Deep Method and its Application on Shame, *Tanja Schneeberger, Mirella Hladký, Ann-Kristin Thurner, Jana Volkert, Alexander Heimerl, Tobias Baur, Elisabeth André and Patrick Gebhard (Deutsches Forschungszentrum für Künstliche Intelligenz GmbH, Germany; MSB Medical School Berlin, Universität Heidelberg, Germany; Universität Augsburg, Germany)*
3. Causal Relationships Between Emotions and Dialog Acts, *Shuyi Cao, Lizhen Qu and Leimin Tian (Monash University, Australia)*
4. Fine-Grained Emotion Prediction by Modeling Emotion Definitions, *Gargi Singh, Dhanajit Brahma, Piyush Rai and Ashutosh Modi (Indian Institute of Technology Kanpur, India)*

9:20 - 9:50 TAC Best Paper Presentation Awards

1. Emotions Recognition Using EEG Signals: A Survey, *Soraia M. Alarcão, Manuel J. Fonseca (Universidade de Lisboa)*
2. Identifying Stable Patterns over Time for Emotion Recognition from EEG, *Wei-Long Zheng, Jia-Yi Zhu, Bao-Liang Lu (Shanghai Jiao Tong University)*
3. Automatic Analysis of Facial Actions, *Brais Martinez, Michel F. Valstar, Biban Jiang and Maja Pantic (Imperial College London, University of Nottingham)*
4. Building Naturalistic Emotionally Balanced Speech Corpus by Retrieving Emotional Speech from Existing Podcast Recordings, *Reza Lotfian, Carlos Busso (UT Dallas)*
5. Personalized Multitask Learning for Predicting Tomorrow's Mood, Stress, and Health, *Sara Taylor, Natasha Jaques, Ehimwenma Nosakhare, Akane Sano, Rosalind Picard (MIT)*
6. EEG Emotion Recognition Using Dynamical Graph Convolutional Neural Networks, *Tengfei Song, Wenming Zheng, Peng Song, Zhen Cui (Nanjing University of Science and Technology)*
7. AMIGOS: A Dataset for Affect, Personality and Mood Research on Individuals and Groups, *Juan Abdon Miranda-Correa, Mojtaba Khomami Abadi, Nicu Sebe, Ioannis Patras (University of Trento, Queen Mary Univesity of London)*

9:50 - 10:20 Topic-Themed Social Event

10:20 - 11:20 Keynote: Cynthia Breazeal

Chair: Ginevra Castellano

11:20 - 11:35 Coffee Break

11:35 - 12:50 AAAC Town hall and award ceremony

12:50 - 13:50 Privacy and Risk Mitigation (Session 9)

Chair: Isabelle Hupont

1. Privacy and Utility Preserving Data Transformation for Speech Emotion Recognition, *Tiantian Feng and Shrikanth Narayanan (Signal processing and Interpretation Lab, USC, USA)*
2. Privileged Information for Modeling Affect In The Wild, *Konstantinos Makantasis, David Melbart,*

ACII 2021 Conference Program

Antonios Liapis and Georgios Yannakakis (Institute of Digital Games, University of Malta, Malta)

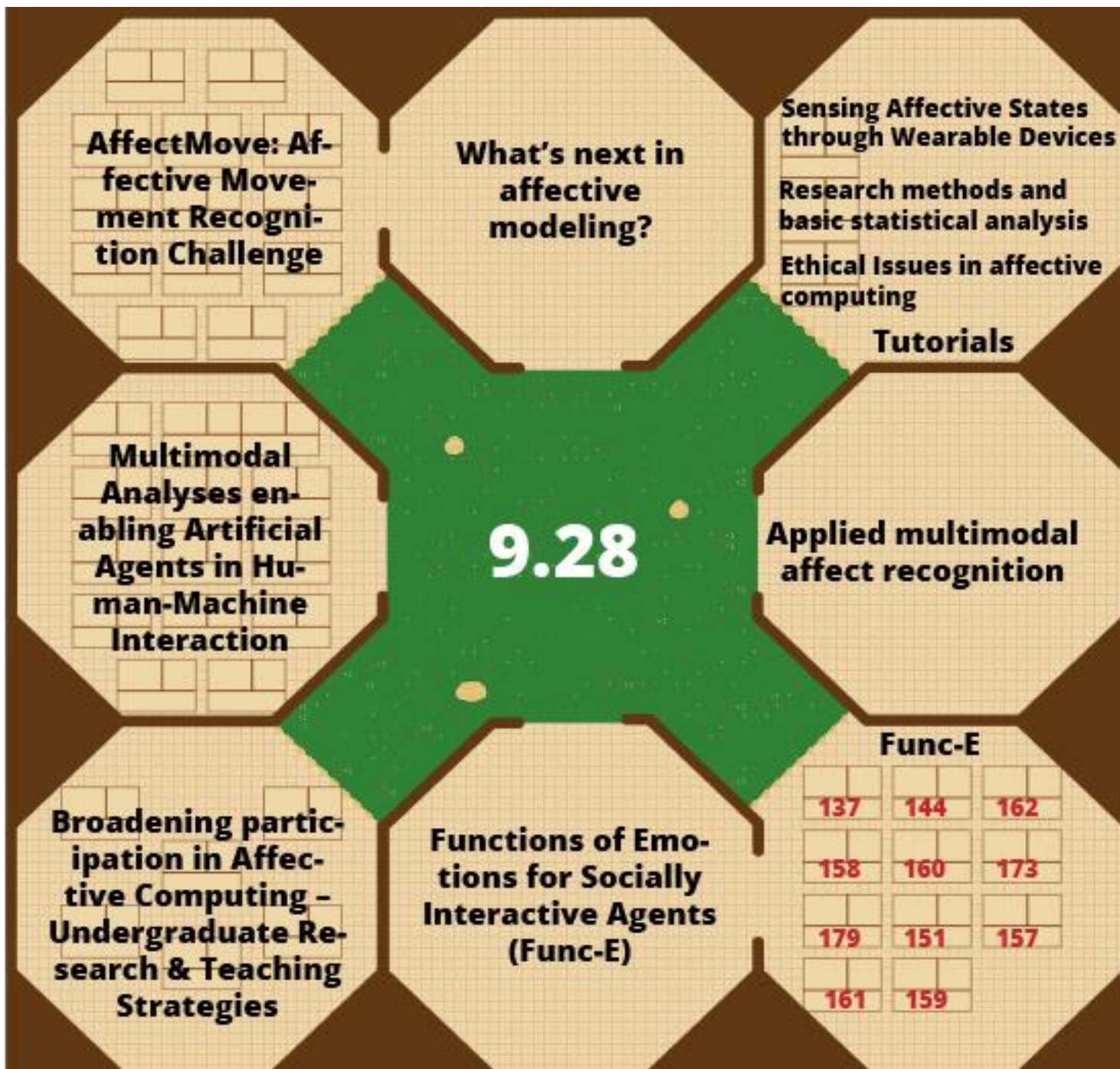
3. Guidelines for Assessing and Minimizing Risks of Emotion Recognition Applications, *Javier Hernandez, Josh Lovejoy, Daniel McDuff, Jina Suh,*

Tim O'Brien, Arathi Sethumadhavan, Gretchen Greene, Rosalind Picard and Mary Czerwinski (Microsoft, Harvard Kennedy School, MIT, USA)

13:50 - 14:00 Closing remarks

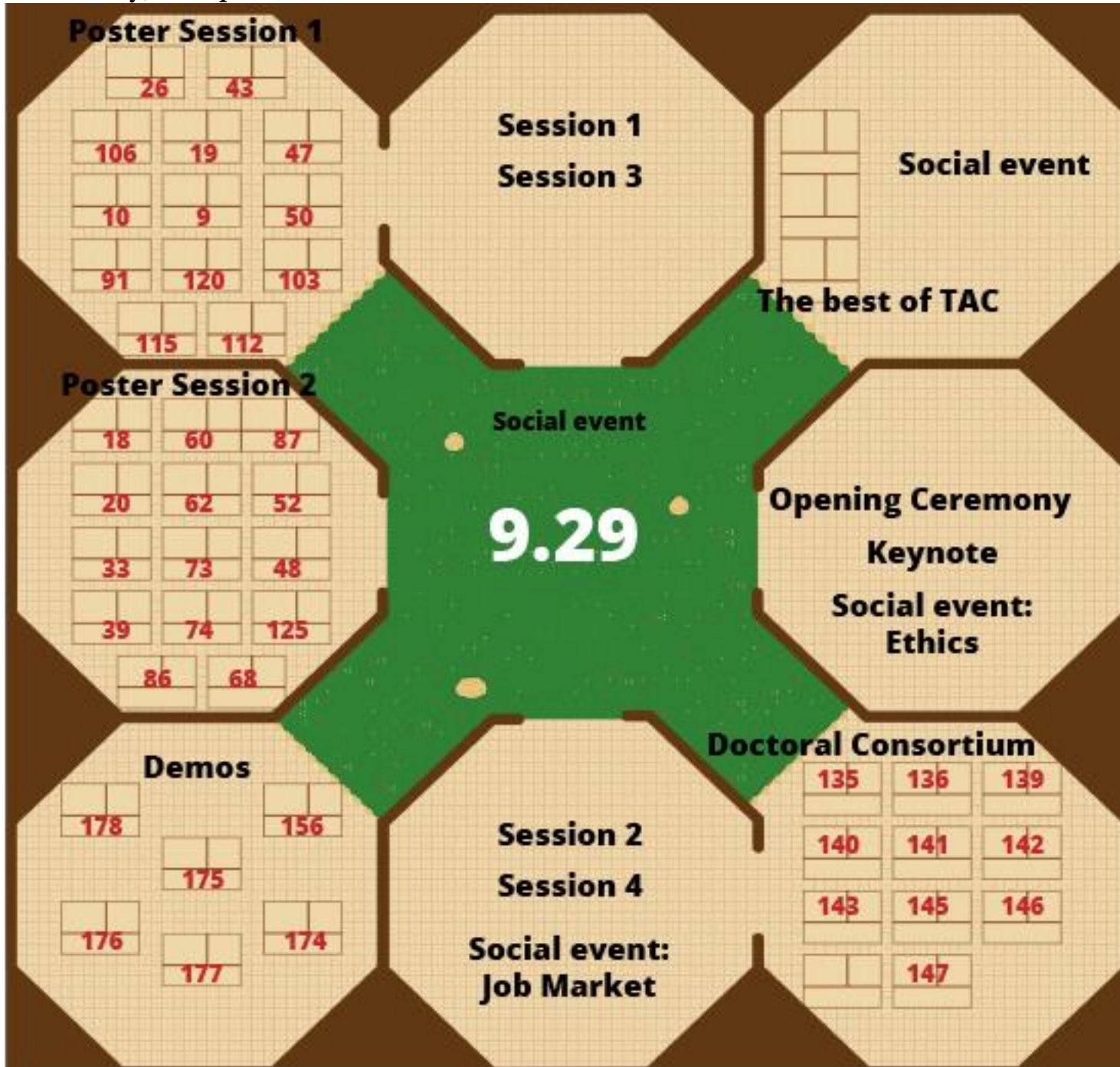
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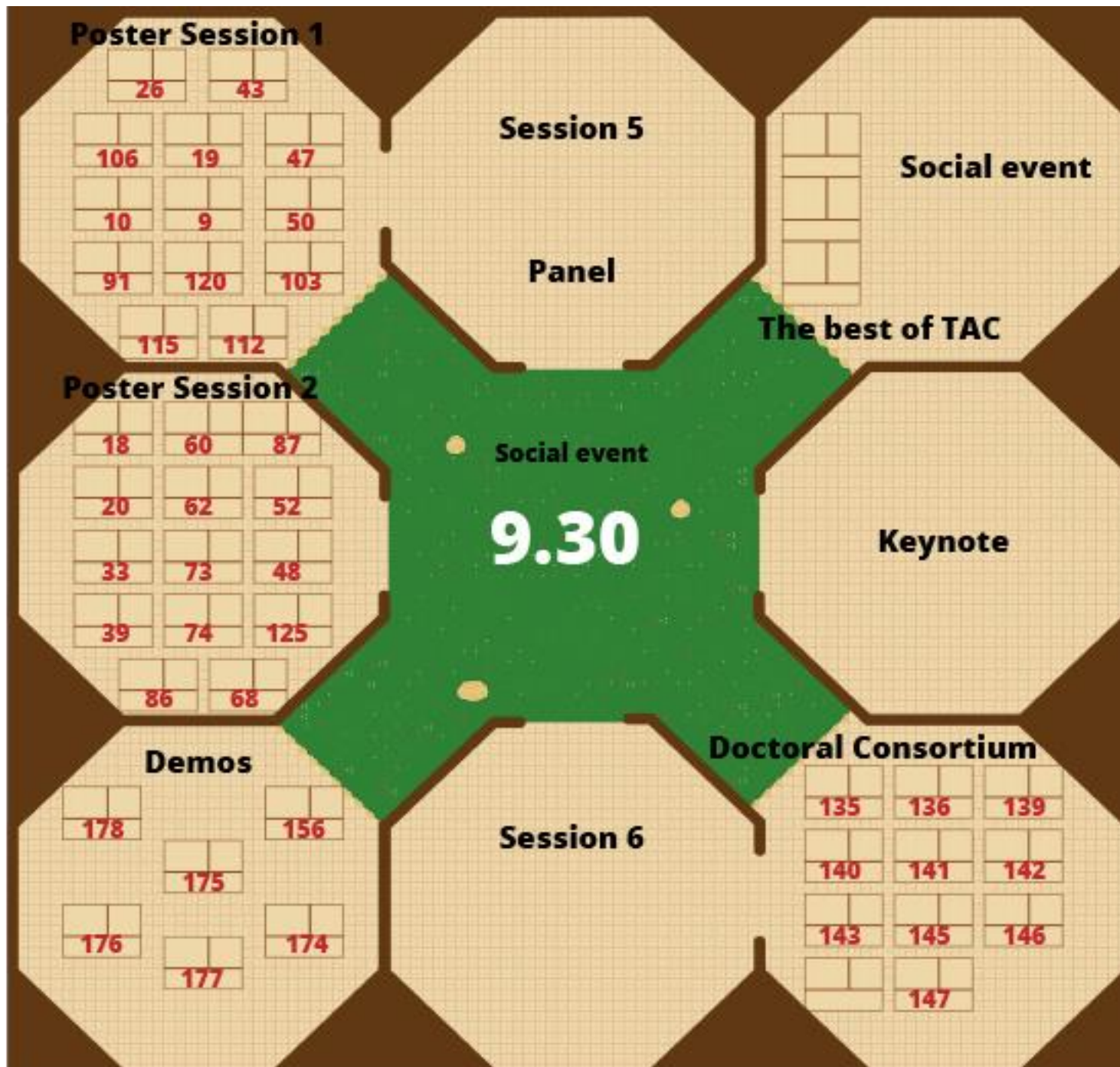
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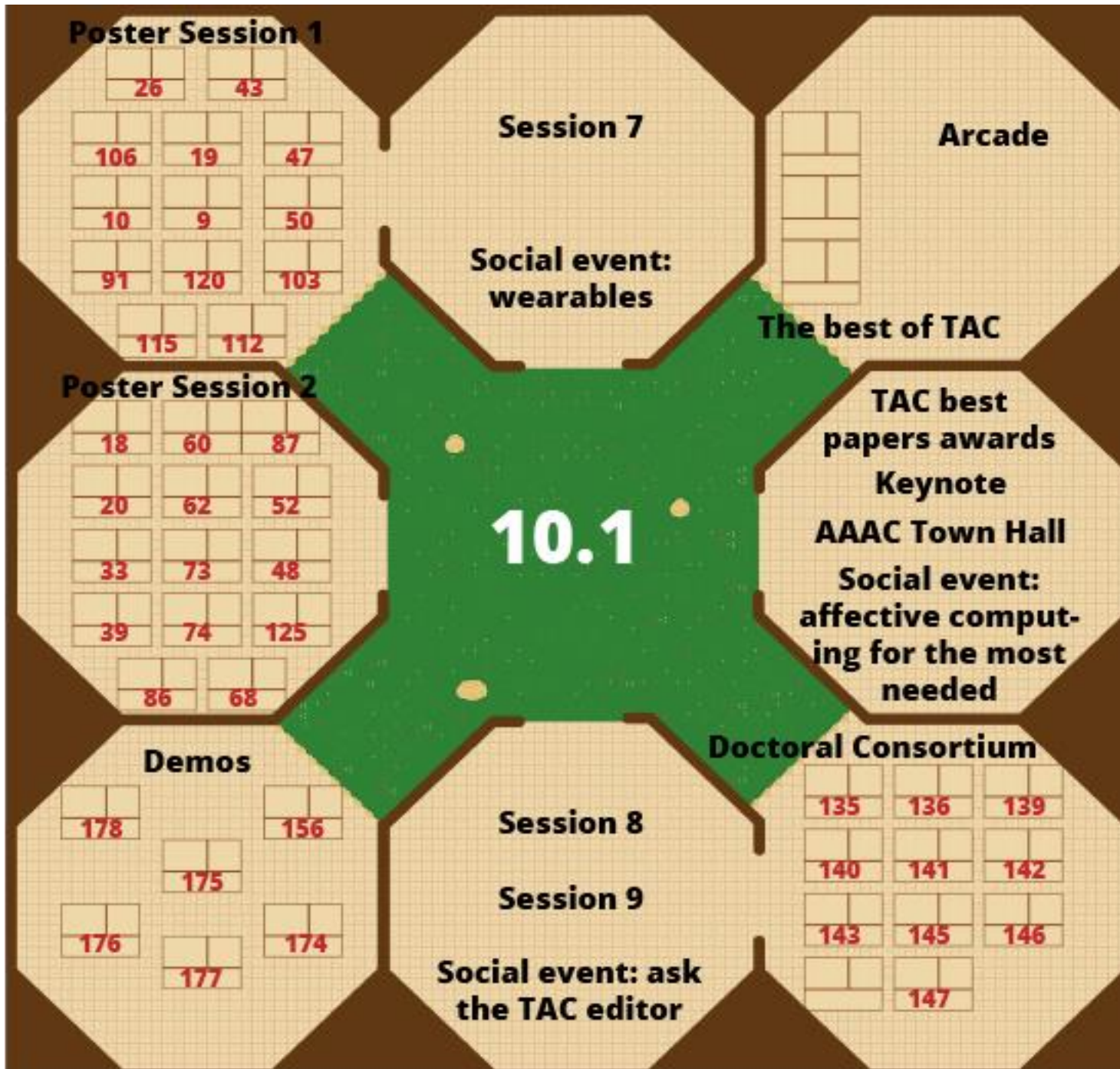
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Thursday, 30 September



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Friday, 1 October



Workshop on Broadening Participation in Affective Computing

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Abstract— Affective computing courses are taught at institutions like University of Southern California, MIT, and Georgia Tech. These courses are mainly introductory and usually geared towards educating graduate students on the relevant and current psychological theories and artificial intelligence techniques that inform how technologies can begin to synthesize, sense, and interpret human phenomenon related to emotions. Institutions are beginning to craft affective computing courses that allow undergraduate students to apply these techniques to software projects without being bogged down in the theories that permeate graduate courses. Additionally, computer science programs are pursuing research related to technology, race, and society and social impact innovations that can influence the emotions of a nation, culture, or company. This workshop seeks to bring together researchers in the field and spark conversations on how researchers can bring more positive impact towards underserved and marginalized persons through affective technologies.

Index Terms—education, affective computing

I. INTRODUCTION

Although the field of affective computing was pioneered by a woman, Dr. Rosalind Picard [2], technologies created in this field is mainly architected by white and male computer scientists. Biases may be built into emotionally intelligent applications without participation of populations that be indirectly discriminated against by these technologies [3]. This workshop's primary goals are: 1) to study how a safe space can be built to allow for affective computing researchers to brainstorm and talk about the ways to increase the number of underserved and marginalized groups that create emotionally intelligent technologies and 2) to investigate ways undergraduate research and education can be enhanced through teaching of affective computing techniques and practices. To accomplish these goals, various activities including a key-note talk, a fireside chat, and a break-out session discussing undergraduate curriculum and conversations on protection of underserved and marginalized group through affective computing technology.

This workshop has the potential to increase the number of 1) underserved and marginalized persons that pursue affective computing research and 2) emotionally intelligent

technologies designed for traditionally unprotected humans. Outputs of the workshop will be curriculum research and publications.

II. SCHEDULE

TABLE I. WORKSHOP SESSIONS, NAMES, TIME, AND DESCRIPTIONS.

Sept 28, 2021 at 6:00 – 10pm LDT; 1pm – 5pm EDT (Virtual)		
Session Name	Type	Description
Welcome Message	Keynote 30 min 1:00 – 1:30	Speaker: Ehi Nosakhare, Ph.D. – Microsoft Research Moderator: Washington Participants will listen and ask questions to an expert in affective computing research
Undergraduate Curriculum Discussion	Fireside Chat 30 min 1:40 – 2:10	Speaker: Daily, McClendon, & Washington Moderator: Mejias Sub-activity: Exploring undergraduate affective computing research and education strategies and examples in action
Break	15 min	Break
Funding Research in Affective Computing	45 min 2:15 – 3:00	Speaker: Prabha Balakrishnan, Ph.D. Moderator: McClendon Sub-activity: Exploring where affective computing research is mainly funded in the NSF and internationally. Session will be interactive with NSF Program Directors; will also talk about programs available to international collaborators
Privacy, Ethics, & Bias in Affective Computing; Opportunities for New Technologies	Break-out 45 min 3:00-3:45	Moderator: All organizers Organizers and participants will discuss privacy, ethics, and bias in current emotionally intelligent applications and how these shortcomings could be turned into new opportunities.
Research Highlights from Undergrad and Grad Projects	45 min 3:45-4:25	Speaker: Nicole Sullivan, Cree St Juste, and Lucretia Williams Moderator: Bryant
Discussion, Wrap-up, & Lessons Learned	4:30 – 5pm	Moderator: All organizers Report out on lessons-learned and future collaborations

III. SPEAKERS

A. Ehi Nosakhare, Ph.D.



Dr. Ehi Nosakhare is an Applied Scientist at Microsoft's New England Research and Development Center (NERD). She designs, develops and leads the implementation of

machine learning (ML) solutions in application projects for Microsoft's products and services. In August 2018, she graduated with a Ph.D. in Electrical Engineering and Computer Science (EECS) from the Massachusetts Institute of Technology (MIT). Her dissertation was on developing probabilistic latent variable models and variational inference methods, and applying them to healthcare problems. Ehi got her S.M. in EECS from MIT, and graduated with a B.Sc. in Electrical Engineering, summa cum laude, from Howard University, Washington DC. As a student, she completed internships at Microsoft and IBM T. J. Watson Research Center. She is a recipient of a best paper award at the ML for Healthcare Workshop at NeurIPS, a top tier ML academic conference. Ehi has been honored as a Tau Beta Pi Scholar and Fellow, and is a member of IEEE Eta Kappa Nu honor society. She is very passionate about using ML to solve real-world problems and studying the ethical implications of ML/AI. In her spare time, she enjoys reading and re-learning to play the cello.

B. Prabha (Balakrishnan) Prabhakaran



Dr. Prabhakaran is currently a Program Director in the Human Centered Computing (HCC) program of Information and Intelligent Systems (IIS) Division of the CISE (Computer and Information Science and Engineering) Directorate of the National Science Foundation (NSF). He is also involved with Secure and

Trustworthy Computing as well as other programs such as Fairness in Artificial Intelligence, Future of Work. Before coming to the NSF, Prabhakaran was a Professor in the faculty of Computer Science Department, University of Texas at Dallas. Dr. Prabhakaran received the prestigious NSF CAREER Award FY 2003 for his proposal on Animation

Databases. He was selected as an ACM Distinguished Scientist in 2011 and is currently an IEEE Senior Member. He is an Associate Editor of IEEE Transactions on Multimedia. He is Member of the Editorial board of Multimedia Systems Journal (Springer), Multimedia Tools and Applications journal (Springer), and other multimedia systems journals. He received the Best Associate Editor for 2015, from Springer's Multimedia Systems Journal. Dr. Prabhakaran is a Member of the Executive Council of the ACM Special Interest Group on Multimedia (SIGMM) and is the Co-Chair of IEEE Technical Committee on Multimedia Computing (TCMC) Special Interest Group on Video Analytics (SIGVA). Dr. Prabhakaran served the General Co-Chair of the IEEE International Conference on Health Informatics (ICHI) 2015. He was also a General Co-Chair of ACM International Conference on Multimedia Retrieval 2013 (ICMR 2013), IEEE Haptic, Audio, and Visual Environments (HAVE) 2014, a General Co-chair of ACM Multimedia 2011, and ACM Multimedia and Security (MM&Sec) 2007. Prof Prabhakaran's research has been funded by Federal Agencies such as the National Science Foundation (NSF), USA Army Research Office (ARO), and the US-IGNITE Program, apart from industries and consortiums.

C. Gloria Washington, Ph.D.



Dr. Gloria Washington is the lead organizer for the workshop and a confirmed speaker. She is an Assistant Professor at Howard University in Computer Science and runs the Affective Biometrics Lab. The mission of ABL is to improve the everyday lives

of underrepresented and/or underserved humans through the creation of technologies that utilize human physiological and behavioral characteristics for identity recognition and/or understanding of human emotions. Currently, she is leading research that explores the role of affect and imposter syndrome on performance in computer science courses. Finally, she also works closely with clinicians within the Howard University Hospital to develop technologies for improving the lives of children and teenagers with Sickle Cell Disease through creation of tools for keeping track of their pain and encouraging them in moments of depression. Before coming to Howard, she was an Intelligence Community Postdoctoral Research Fellow in the Department of Computing Science at Clemson University. Dr. Washington holds M.S. and Ph.D. in Computer Science from The George Washington University, and a B.S. in Computer

Information Systems from Lincoln University of Missouri, an HBCU.

D. Shaundra B Daily, Ph.D.



Dr. Shaundra Daily is the co-lead for the workshop and a confirmed speaker. Shaundra B Daily is a professor of practice in Electrical and Computer Engineering & Computer Science at Duke University. She is also Co-founder and creative director of DEEP Designs, LLC. Prior to joining Duke, she was an associate

professor at the University of Florida in the Department of Computer & Information Science & Engineering. She also served as an associate professor and interim co-chair in the School of Computing at Clemson University. Her research involves the design, implementation, and evaluation of technologies, programs, and curriculum to promote justice, equity, diversity, and inclusion in STEM fields. Dr. Daily earned a B.S. and M.S. in electrical engineering from the Florida Agricultural and Mechanical University – Florida State University College of Engineering, and a S.M. and Ph.D. in media art and sciences at the MIT Media Lab.

E. Marlon Mejias, Ph.D.



Dr. Marlon Mejias is the Co-lead for the workshop and is a confirmed speaker. Dr. Mejias is an Assistant Professor in the Department of Software and Information Systems at UNC Charlotte. His research interests lie in the field of Socio-technical Systems, Educational Technology

and Human Computer Interaction. He is interested in the application of persuasive technology and gamification to solve problems that are socially relevant. The primary thrust of his current research is in designing and implementing a socio-technical approach to improving the holistic education of undergraduate computer science students. Dr. Mejias has a B.Sc. in Systems and Computer Science from Howard University, a M.Sc. in Systems Engineering from The George Washington University and a Ph.D. in Computer Science from Howard University. Marlon Mejias has taught, middle school, high school summer enrichment programs and undergraduate and graduate level computer science. He has received a "Graduate Certificate in College and University Faculty Preparation" from Howard University as well as the "Essentials of Teaching and Learning, Teaching Certificate" from UNC Charlotte's Center for Teaching and Learning. He takes a constructivist approach to teaching with many of his classes implemented with an active learning, socially and culturally-relevant pedagogical approach.

F. Jerome McClendon, Ph.D.



Jerome McClendon, Ph.D. is the Co-lead for the workshop and is a confirmed speaker. Dr. Jerome L. McClendon is a Research Assistant Professor at Clemson University. His appointment is currently in the Department of Automotive Engineering, but in the past he was a Research Assistant Professor in the School of Computing at Clemson University. Dr. Jerome McClendon's research efforts lie at the intersection of Artificial Intelligence and Human Centered Computing. Specifically, his research is focused on the design, implementation and evaluation of intelligent computing systems that mimic human behavior in the following four areas of interest: 1) robotics and autonomous systems , 2) conversation or natural language understanding , 3) learning, and 4) decision making. His aim is to use systems with intelligent capabilities to assist experts from various domains in becoming more effective and efficient professionals.

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- [1] Blackman, Lisa, and Couze Venn. "Affect." *Body & Society* 16.1 (2010): 7-28.
- [2] Picard, R. W. (2000). *Affective computing*. MIT press.
- [3] Rhue, Lauren. "Emotion-reading tech fails the racial bias test." *The Conversation* (2019).

