Special Session Proposal for the 7th IEEE Cyber Science and Technology Congress (CyberSciTech 2022) September 12-15, 2022

Sponsor: IEEE Systems, Man, and Cybernetics Society
http://cyber-science.org/2022/cyberscitech/

1. Title and Acronym

Social and BIOmetric data for APPlications in human- machine interactions: Models and algorithmS (SOBIOAPPS)

Sponsors

EMPATHIC: Empathic, Expressive, Advanced Virtual Coach, http://www.empathic-project.eu/
MENHIR: Mental Health Monitoring through Interactive Conversations, http://menhir-project.eu/
SIROBOTICS: SocIal ROBOTics for active and healthy ageing, MIUR, Italy, https://www.exprivia.it/en/show-info-event-full.php?id_event=7907
ANDROIDS: AutoNomous DiscoveRy Of depressIve Disorder Signs, https://www.psicologia.unicampania.it/android-project,

2. Brief technical description

The aim of this WORKSHOP is to provide an overview of ideas and methods for developing autonomous systems capable to act as socially and emotionally believable assistive interfaces. To this aim, data gathered from behavioural and social experiments, biometrics measurements, and models of social and individual behaviours are considered as signals to be processed and interpreted through new proposed algorithms and theoretical frameworks. These interdisciplinary facets found relevant applications in ICT interfaces for monitoring the health and affective states of their users, gather their psychological feelings and behavioural patterns, and support them through suitably designed interventions. The development of these themes brought the promises of substantially improve the interaction with technologies likely to become part of our everyday life in the next years, including virtual assistants like Alexa or Siri, social robots, and embodied conversational agents.

An additional factor that makes the workshop special is the diversity of disciplinary backgrounds of the likely contributors: psychologists, health scientists, computer scientists, cognitive scientists, philosophers. Such an interdisciplinary confluence at an event that is traditionally more engineering oriented may open new ways to equip machines with a human level of automaton intelligence.

TOPICS

Topics include but are not limited to:

- Analysis and identification of affective wellbeing and emotional states
- Case studies for detection of health status and personal health informatics
- Supervised and unsupervised algorithms for psychological and health status identification
- Application Oriented Redefinition of "Emotions"
- Computational models of emotions
- Emotional speech algorithms
- Facial affect detection
- Physiological monitoring systems
- Computational Architectures for Affective Systems
- Personalized Decision Support Systems for healthcare and wellbeing
- AI for Precision Medicine
- Electronic health records (EHR) data mining
- Examples of precision medicine in human disease treatment and prevention
- Supervised and Unsupervised Learning Algorithms in Affective Systems
- Human and/or machine encoding and decoding of behavioral patterns
- Unimodal and Multi-modal analysis of behaviors (speech, facial expressions, gesture)
- ….

3. Description of the review process

Papers will be submitted trough EasyChair and will be reviewed through a single round by at the least two members (and even more to resolve conflicts among reviewers) of the Technical Programme Scientific Committee. Papers that receive conflictual reviewers' recommendation will be furtherly reviewed by the organizers for the final decision. If submitted, organizers' papers will be handled avoiding conflicts of interest and if judged as borderline papers they will be rejected automatically.
No efforts are made to obtain a fixed acceptance rate that can exclude good papers and/or include bad ones, even though the acceptance rate is foreseen to be around 35%-40%. The foreseen expected number of accepted papers is around 10-15.
The potential list of TCP members (these researchers will be invited to contribute and/or serve are PC members of the workshop if accepted) is reported below:

- **Dongmei Jiang - Northwestern Polytechnical University, USA**
- **Vidhyasaharan Sethu - University of New South Wales, Australia**
- **Zakia Hammal -** Carnegie Mellon University, USA
- **Louis-Philippe Morency -** Carnegie Mellon University, USA
- **Michel Valstar -** University of Nottingham, UK
- **Mohammed Chetouani -** Sorbonne Université, France
- **Nicu Sebe -** University of Trento, Italy
- **Ronald Poppe -** Utrecht University, Netherlands
- **David Cohen -** Sorbonne Université, France
- **Elisabeth André -** Augsburg University, USA
- **Francesca D'Errico –** Bari University, Italy
- **Hatice Gunes -** University of Cambridge, UK
- **Isabella Poggi -** Roma Tre University, Italy
- **Alessandro Vinciarelli -** University of Glasgow, Scotland
- **Sergio Escalera -** UB, CVC, Spain
- **Cristina Palmero -** UB, CVC, Spain
- **Maria Wolters**, University of Edinburgh, UK
- **Ailbhe Ni Chasaide**, Trinity College Dublin, IE
- **Felix Schaeffler,** Queen Margaret University College, U.K.
- **Barbara Lewandowska-Tomaszczyk,** University of Lodz, Pozan, PL
- **Saturnino Luz**, University of Edinburgh, UK
- **Maria Koutsombogera,** Trinity College Dublin, IE
- **Mike McTear**, Ulster University, Newtownabbey, UK
- **Francesca Bonin**, IBM Research Dublin, IE
- **David Sztaho**, Budapest Institute of Technology and Economics, HU
- **Costanza Navarretta**, University of Copenhagen, DN
- **David Griol**, Universidad Carlos III de Madrid, ES
- **Volha Petukhova**, Saarland University, DE
- **Heriberto Cuayahuitl**, University of Lincon, UK
- **Roger K Moore**, University of Sheffield, UK
- **Jane Zheng**, Ulster University, Newtownabbey, UK
- **Rytis Maskeliunas**, University of Vilnius, LT
- **Milan Gnjatovic**, University of Novi Sad, SE
- **Ingo Siegert**, Otto-von-Guericke-University Magdeburg, Magdeburg, DE
- **Giuseppe Riccardi**, University of Trento, IT
- **Neil Glackin,** Intelligent Voice LTD, London, UK,
- **Ronald Boeck**, Otto-von-Guericke-University Magdeburg, Magdeburg, DE
- **Raymond Bond**, Ulster University, Newtownabbey, UK
- **Wolfgang Minker**, Ulm University, GDE
- **Stephan Schlögl**, MCI Insbruck, AU
- **Eduardo Lleida,** Universidad de Zaragoza, ES
- **Rubén San Segundo,** Universidad Politécnica de Madrid, ES
- **Maurice Mulvenna,** Ulster University, Newtownabbey, UK
- **Hiroyuki Umemuro**, Tokyo Institute of Technology, JP
- **Tatsuya Kawahara**, University of Kyoto, JP
- **Masahiro Araki**, Kyoto Institute of Technology, JP
- **Kentaro Watanabe**, AIST, JP
- **Carlos Busso**, The University of Texas at Dallas, USA
- **Engin Erzin, Koç**, University, eerzin@ku.edu.tr
- **Fabien Ringeval**, University of Grenoble, FR,
- **Nicholas Cummins**, University of Augsburg, DE

- **Zixing Zhang**, Imperial College, UK
- **Marilyn Walker**, University of California Santa Cruz, USA
- **Laurence Devillers**, Université Paris-Sorbonne, FR
- **Chloé Clavel**, Télécom-ParisTech, FR
- **Dirk Heylen**, University of Twente, NL
- **Khiet Truong**, University of Twente, NL
- **Emily Mower-Provost**, University of Michigan, USA

4. One-page CFP of the Workshop, including the submission deadline and notification date (according to the dates established for the main conference)

This workshop calls for papers reporting on

- Signal processing algorithms able to capture emotional features from unimodal and multimodal social signals and, realize coherent multimodal fusions of such features to produce coherent autonomous systems' responses.
- Fast and efficient computational models detecting and discriminating healthy/nonhealthy states (mood - e.g. depression - and cognitive disorders – e.g. dementia) through the cross-modal analysis of behavioural and functional signals (speech, facial expressions, handwriting, gestures and more) retaining their hierarchically structured, time-dependent and reciprocally connected relationships.
- Emotional and empathic contents (either successful or unsuccessful) underpinning human daily interactional exchanges to generate affective models for user-centered human-machine interaction, and assistive ICT interfaces.
- Models and algorithms integrating social and emotional behaviour in interaction strategies for eliciting emotional responses, and reactions favouring human's engagement.
- Measurements on how affective models impact on users' acceptance and use of assistive living technologies.
- Discuss relevant ethical and social aspects of affective technology.

IMPORTANT DATES

- Paper Submission Dues: **June 1, 2022**
- Notification of acceptance: **July 1, 2022**
- Camera-ready submission: **July 15, 2022**
- Conference Dates: **Sept 12-15, 2022**

PUBLICATION AND PAGE LIMITATIONS

- Accepted contributions will be published in the IEEE CyberSciTech 2022 proceedings http://cyber-science.org/2022/cyberscitech/papersubmissions/
- The maximum length of the submitted papers must be around 4-6 pages (two columns)
- The manuscripts should be submitted through Easy Chair conference system by using the following website address (to be set if the Workshop proposal is accepted)

WORKSHOP FORMAT:

- The Workshop format considers 20 minutes for each accepted presentation, including questions.
- A round table is foreseen (scheduled time: 1 hour), on the theme: "The dependability of voice in interactional exchanges"
- A special issue is foreseen on a high impact journal (to be prepared is the proposal is accepted)
- Attendance at SOBIOAPPS 2022 workshop will be covered under the general registration fee for the main conference CyberSciTech 2022

5. History of the workshop

The topics of SOBIOAPPS have gathered consensus, and collected from 12 to 25 accepted contributions in several special tracks held during the IEEE international Conference on Cognitive Info Communication (CogInfocom 2016, 2017, 2018, 2019, 2020, 2021 editions), the Italian Workshop on Neural Networks (WIRN 2016, 2017, 2018, 2019), INTERSPEECH 2019.

6. WORKSHOP CHAIRS

- **Anna Esposito**, Università della Campania "Luigi Vanvitelli" Dipartimento di Psicologia, Italy, iiass.annaesp@tin.it
- **Zoraida Callejas Carrión**, Universidad de Granada, Department of Lenguajes y Sistemas Informáticos, Spain, zoraida@ugr.es

- **Antonietta M. Esposito,** Istituto Nazionale di Geofisica e Vulcanologia, Sez. di Napoli Osservatorio Vesuviano, Italy, antonietta.esposito@ingv.it
- **Terry Amorese,** Università della Campania "Luigi Vanvitelli" Dipartimento di Psicologia, Italy, terry.amorese@unicampania.it
- **Laura Verde**, Università della Campania "Luigi Vanvitelli" Dipartimento di Matematica e Fisica, Italy, laura.verde@unicampania.it
- **Gennaro Cordasco**, Università della Campania "Luigi Vanvitelli" Dipartimento di Psicologia, Italy, gennaro.cordasco@unicampania.it
- **Carl Vogel**, Trinity College Dublin, School of Computer Science and Statistics, Ireland, vogel@cs.tcd.ie

7. Length of the WORKSHOP (in hours)

The length of the **WORKSHOP** will range from 2 to 6 hours depending on the number of accepted contributions.