VIHAR 2019

Second international workshop on vocal interactivity in-and-between humans, animals and robots

29 – 30 August 2019

Agenda

Queen Mary University of London
Mile End Road
London
E1 4NS

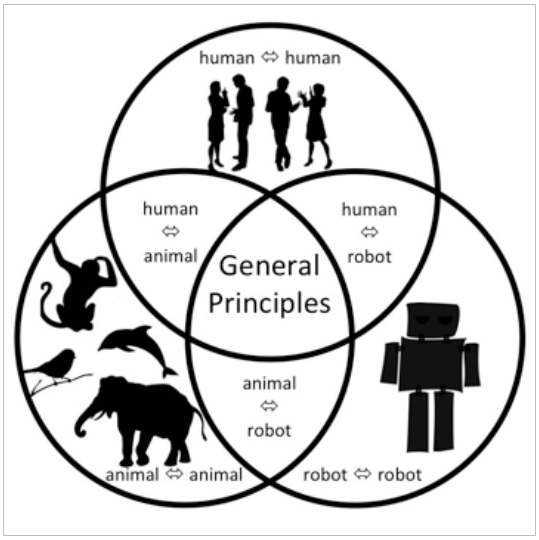
The workshop will take place at Queen Mary University of London, UK, at the Mile End Campus, Arts Two Building. Nearest stations on the London Underground are Mile End on Hammersmith and City, District and Central lines; and Stepney Green on the Hammersmith and City and District lines

Thursday 29 August

10:30 – 11:00	Registration and coffee
11:00 – 11:30	Welcome
11:30 – 12:30	**Studying bats to shed light on speech and language** – Sonja Vernes (Max Planck Institute for Psycholinguistics, The Netherlands)
12:30 – 14:00	Lunch and posters
14:00 – 15:00	**Oral session one**
15:00 – 16:00	Coffee break and posters
16:00 – 17:00	**Can machines learn how to talk?** – Verena Rieser (Heriot-Watt University Computer Science Department, Edinburgh)
17:00 – 18:00	**Oral session two**
18:00 – 19:00	Reception

Friday 30 August

9:30 – 10:30	**Interpersonal speech-based interaction** - Mohamed Chetouani (Sorbonne University, France)
10:30 – 11:00	Coffee break
11:00 – 12:30	**Oral session three**
12:30 – 14:00	Lunch
14:00 – 15:00	**Keynote four** - Tecumseh Fitch (University of Vienna, Austria)
15:00 – 16:00	**Oral session four**
16:00 – 16:30	Coffee break
16:30 – 17:30	**Panel session**
17:30 – 18:00	Closing remarks, next VIHAR



Posters

- **Play Vocalizations in White-handed Gibbons (Hylobates lar)** - Angela Dassow
- **Robot-pet vocal interactions: Domestic chicks as a model system** - Elisabetta Versace, Michael Mcloughlin, Dan Stowell and Kaspar Althoefer
- **The acoustic correlates of Aegyo (애교) speaking style in South Korea** - Ji-Eun Kim, Carolina Baslino and Volker Dellwo
- **Vocal expression of emotional valence in pigs across multiple call types and contexts** - Elodie F. Briefer, Pavel Linhart, Richard Policht, Marek Špinka, Lisette Leliveld, Sandra Düpjan, Birger Puppe, Mónica Padilla de la Torre, Andrew M. Janczak, Cécile Bourguet, Veronique Deiss, Alain Boissy, Carole Guerin, Eva Read, Marjorie Coulon, Edna Hillmann and Céline Tallet
- **Learning how to sing: Developing a virtual bird to probe zebra finch vocal interactivity** - Julia Hyland Bruno, Seth Cluett, Ben Holtzman and George Lewis
- **Initial observation of human-bird vocal interactions in a zoological setting** - Rebecca Kleinberger, Gabriel Miller and Janet Baker

Oral session one

29 August, 14:00 – 15:00

- **Sex dimorphic phrase combinatorics in the song of the indris (Indri indri)** - Anna Zanoli, Chiara De Gregorio, Daria Valente, Valeria Torti, Giovanna Bonadonna, Rose Marie Randrianarison, Cristina Giacoma and Marco Gamba
- **Melody Matters: An Acoustic Study of Domestic Cat Meows in Six Contexts and Four Mental States** - Susanne Schötz, Joost van de Weijer and Robert Eklund

- **Sexual recognition between females and males that can call being pregnant: Who and how do Darwin's frog interact vocally?** - Jose Serrano, Noé Guzmán, Mario Penna, Marco Méndez and Claudio Soto-Azat

Oral session two

29 August, 17:00 – 18:00

- **Development and application of a robotic zebra finch (RoboFinch) to study multimodal cues in vocal communication** - Ralph Simon, Judith Varkevisser, Ezequiel Mendoza, Constance Scharff, Katharina Riebel and Wouter Halfwerk
- **A System for Robot-Chick Vocal interactions** - Michael Mcloughlin, Shuge Wang, Dan Stowell, Emmanouil Benetos and Elisabetta Versace
- **Matching human vocal imitations to birdsong: An exploratory analysis** - Kendra Oudyk, Yun-Han Wu, Vincent Lostanlen, Justin Salamon, Andrew Farnsworth and Juan Bello

Oral session three

30 August, 11:00 – 12:30

- **Challenges for integrating multimodal information into an open-source human-robot [speech] interaction system** - Michael Brady
- **Vocal emotion recognition in school-age children: The Emo-HI test for hearing-impaired populations** - Leanne Nagels, Etienne Gaudrain, Debi Vickers, Marta Matos Lopes, Petra Hendriks and Deniz Baskent

- **A study on the lombard effect in telepresence robotics** - Ambre Davat, Gang Feng and Véronique Aubergé
- **“Where do you go, Trico?”: Talking to animal companions in**
- **the video game, The Last Guardian** - Hiloko Kato

Oral session four

30 August, 15:00 – 16:00

- **Orca vocalization pitch tracking over three years of on pentaphonic continuous recording** - Marion Poupard, Paul Best, Jan Schluter, Helena Symonds, Paul Spong, Thierry Lengagne, Thierry Soriano and Hervé Glotin
- **Wave Propagation in the Biosonar Organ of sperm whales using Finite Difference Time Domain** - Maxence Ferrari, Ricard Marxer, Mark Asch and Hervé Glotin
- **Vocal Interactivity in Crowds, Flocks and Swarms: Implications for Voice User Interfaces** - Roger Moore

Keynotes

Studying bats to shed light on speech and language – Sonja Vernes (Max Planck Institute for Psycholinguistics, The Netherlands)

Vocal production learning - the ability to modify vocal signals based on auditory feedback - is an essential component of human speech and spoken language. Comparative studies of vocal learning in animals will be valuable for understanding the biology underlying this trait. Bats are highly social animals that have developed sophisticated vocal systems for navigation and communication. Their capacity for vocal learning, small size, amenability to neurogenetic manipulations, and the long history of studying the neuroethological traits in bats, makes them an excellent

system to model vocal learning. I will present work including highly controlled behavioural paradigms, genomic approaches, and neuro-molecular studies that aim to dissect out the biological mechanisms underlying vocal learning in bats. These approaches aim to show how neuro-genetic mechanisms contribute to a complex behaviour like vocal learning and may ultimately shed new light on the biology and evolution of human speech and language.

Can machines learn how to talk? – Verena Rieser (Heriot-Watt University Computer Science Department, Edinburgh) - on video link

Conversational Artificial Intelligence (AI) makes interaction with machines possible through voice and text platforms, and is a rapidly growing area of research and commerce. These Conversational AI Systems have experienced a revolution over the past decade, moving from being completely handcrafted to using data-driven machine learning methods.
In this talk, I will review these current developments including my work on using reinforcement learning and deep learning models, and evaluate these methods in the light of recent results from two large-scale studies: First, I will summarise results from the End-to-End NLG Challenge for presenting information in closed-domain, task-based dialogue systems. Second, I will report our experience from experimenting with these models for generating responses in open-domain social dialogue as part of the Amazon Alexa Prize challenge.

Interpersonal speech-based interaction - Mohamed Chetouani (Sorbonne University, France)

Analysing human behaviours during social interactions requires to explicitly take into account all the participants. By doing so, researchers in various domains such as psychology, psychiatry, neuroscience, affective computing and human-machine interaction have developed methodologies and tools for analysing and modelling human-human and human-machine interpersonal interactions.

Within this context, the challenge is to develop machines that can decode social interaction by assessing individual and interpersonal dynamics of behaviours, with the goal of analysing and predicting human's implicit social signals and emotional expressions.

In this talk, we will show how jointly analysing individual and inter-individual behaviours offers the opportunity to capture relevant makers of pathologies in particular in autism spectrum disorders.

We will present our works on (i) modelling parent-infant interaction using non-verbal features and the role of infant-directed speech in engagement, (ii) computational models of multimodal emotional contagion and (iii) applications in robotics and services. Analysing human behaviours during social interactions requires to explicitly take into account all the participants. By doing so, researchers in various domains such as psychology, psychiatry, neuroscience, affective computing and human-machine interaction have developed methodologies and tools for analysing and modelling human-human and human-machine interpersonal interactions.