CONVERSATIONS 2017
Workshop Papers

CONVERSATIONS 2017: An International Workshop on Chatbot Research and Design

Conversational interfaces or natural language interaction is the next frontier in the development of ubiquitous data and services. This is particularly seen in the field of chatbots, that is, "machine agents serving as natural language user interfaces to data and service providers"[1]. While chatbots or conversational agents have been a topic of research for decades[2], recent advances in artificial intelligence and machine learning have sparked renewed interest in chatbots[3].

In this context, research on the design, development, and application of chatbots and enabling technologies is critical. Current user interactions with chatbots are still quite basic, owing to several limitations. Users expect natural conversations but these are often limited to message exchanges that are focused on simple task delivery and execution. Challenges pertain to how artificial intelligence and machine learning are leveraged in the context of chatbots, how to benefit from chatbots and natural language interaction in service and content provision, and how to leverage chatbots in emerging technology contexts such as the Internet of Things. Furthermore, natural language interfaces entail challenges related to privacy and trust, as well as safety and security. Chatbots and natural language user interface applications give rise to a wide range of research needs across the fields of information systems design, software engineering, and human–computer interaction.

In response to these cross-disciplinary challenges, researchers and practitioners in the field of chatbot research and design gathered for a full-day workshop in conjunction with the 4th International Conference on Internet Science that took place on November 22, 2017. The workshop included an industry keynote, presentation of eight peer-reviewed papers, and interactive sessions for collaboration and discussion.

Researchers and practitioners in the areas of interest were invited to contribute papers on theoretical or empirical contributions, or detailed demonstrations (6–12 pages). In addition, contributions could also be made as brief position papers (2–3 pages). The call for papers was distributed through relevant networks and mailing lists. Researchers with a track record in chatbot research were sent personal invitations.

A total of eight papers were submitted; five regular papers and three position papers. All regular papers were reviewed by three peers from the Program Committee or among the workshop organizers. The reviewers were requested to provide detailed reviews, and to rate the papers on a four-point scale (reject, major revision, minor revision, accept). We foresaw rejection of papers with reject recommendations. The papers received ratings ranging from major revision to accept; no papers were recommended to be rejected by one or more reviewers.

---

[1] Følstad, A., Brandtzæg, P.: Chatbots and the new world of HCI. Interactions 24(4), 38–42 (2017).

[2] Weizenbaum, J.: ELIZA - a computer program for the study of natural language communication between man and machine. Communications of the ACM 9(1), 36–45 (1966)

[3] Vinyals, O., Le, Q.: A neural conversational model. arXiv preprint arXiv:1506.05869. (2015)

Papers receiving recommendations for major or minor revision were revised and re-submitted by the authors one week before the workshop. Revisions were checked for compliance with reviewer feedback.

The final versions of the papers were provided by the authors two weeks after the workshop. This gave the authors the opportunity to revise their papers in response to feedback gathered during the workshop.

The workshop attracted a nice audience of participants, both paper presenters and non-presenting participants of the Internet Science conference. Approximately 30 persons attended, with fields of research and practice spanning computer science, media science, social sciences, and the humanities.

The presentations served to address a number of important challenges in chatbot research and design. The workshop keynote presented a successful industry case of chatbot development, nicely illustrating a range of relevant considerations in chatbot projects. The five papers included in these proceedings present experiences and lessons learnt from the development and application of two chatbot solutions (Klopfenstein et al. and Kubón et al.), a machine-learning architecture to support open domain chatbots (Kampenhaug et al.), and approaches to model and analyze chatbots with respect to social practices (Dignum and Bex and Aguello et al.). Furthermore, the position papers present insights into users perceptions of chatbots, considerations on the use of push-approaches in chatbots, and a discussion of the need for human-centered design of chatbots. Position papers are available on the workshop website (https://conversations2017.wordpress.com).

The workshop also included a collaborative process to identify key future challenges in chatbot research and design. Challenges were mainly associated with the following:

– Chatbot enablers, in particular the need for strengthened natural language capabilities and abilities to understand and adapt to context.
– Chatbot uptake, in particular concerning the need to strengthen user experience and make chatbots a preferred alternative for a broad range of user groups, across age and gender.

Motivated by the enthusiasm and engagement in the workshop, it was suggested to arrange a similar event at a later point in time such as the International Conference of Internet Science 2018.

CONVERSATIONS 2017 Organization

Organizing Committee

Asbjørn Følstad	SINTEF, Norway
Symeon Papadopoulos	Information Technologies Institute, Centre for Research and Technology Hellas, Greece
Ole-Christoffer Granmo	Centre for Artificial Intelligence Research (CAIR), University of Agder, Norway
Petter Bae Brandtzaeg	SINTEF, Norway

Program Committee

Adam Tsakalidis	University of Warwick, UK
Amela Karahasanovic	SINTEF, Norway
Bence Kollanyi	Oxford Internet Institute, UK
Despoina Chatzakou	Aristotle University of Thessaloniki, Greece
Erik G. Nilsson	SINTEF, Norway
Morten Goodwin	Centre for Artificial Intelligence Research (CAIR), University of Agder, Norway
Stefanos Vrochidis	Centre for Research and Technology Hellas, Greece
Stuart Middleton	IT Innovation, UK

Acknowledgments