Designing for Automated Journalism in the Netherlands: First Steps and No Way Back

Hanna Zoon

Fontys FutureMediaLab

Rachelsmolen 1

Eindhoven, the Netherlands

h.zoon@fontys.nl

info@hannazoon.com

Jeske van Dongen

Fontys FutureMediaLab

Rachelsmolen 1

Eindhoven, the Netherlands

j.vandongen@fontys.nl

Jorge Alves Lino

Lector, Fontys FutureMediaLab

Rachelsmolen 1

Eindhoven, the Netherlands

j.alveslino@fontys.nl

Abstract

We propose our user-centred design method for automated journalistic tools with the goal of supporting journalists' efficiency, allowing for more time to be allocated to investigative and reflective tasks that lead towards in-depth journalism. Our method allows for a journalist-focused, positive perspective on algorithmic news: instead of viewing journalism as a practice in need of replacing, we provide a holistic way to look at journalistic ways of working where there are many promising opportunities for innovation using natural language generation and other artificially intelligent technologies.

Author Keywords

Automated news, robot journalism, user-centred design, design methods, natural language generation, summary technology, conversational interfaces, Dutch language.

Introduction

News keeps us informed about the world we live in. It adds to our quality of living, by putting in the front of our minds what is important. Being informed spurs us into action by triggering awareness, critical thinking and asking the right questions (De Botton, 2014).

However, traditional news media have entered difficult times (Linden, 2017), driven by lower revenues, limiting the resources that allow for the making of high-quality news (Landman, Kik, Hermans & Hietbrink, 2015). While substantial developments have been made in the field of automated news in the English language (Dörr, 2016), in the context of Dutch language such developments are relatively limited (Kasem, Waes, Wannet, 2015), perhaps due to the small language area (Boom, 2016).

At the Fontys FutureMediaLab we are investigating Automated Journalism with a multidisciplinary team of researchers and students. This research is done in close collaboration with Dutch news cooperation De Persgroep. In this paper, we propose our user-centred design method for automated journalistic tools such as summary, search, conversational interfaces or Natural Language Generation, with the goal of support journalists' efficiency, allowing for saved time to be allocated to investigative and reflective tasks that lead towards in-depth journalism.

In this paper, we describe our design method, consisting of adaptations of several methods commonly used in user-centred design processes for interactive product development, but until now seldom applied to the context of automating journalists' work practice. User-centred design methods involve end-users, in this case journalists, from the start and during the entire design process, causing better acceptance and a more positive user experience of the end product (Zoon, Cremers & Eggen, 2014).

Method

A summary of our user-centred method for designing for Automated Journalism, including references to the original methods:

1. Immersion in context (Holtzblatt & Beyer, 2014): Explore journalists' work, analyse and observe workflows and tasks, interview journalists
2. Analyse and categorise observations and interviews through Affinity Mapping (Holtzblatt & Beyer, 2014)
3. Identify repetitive, rule-bound tasks (Frey & Osborne, 2017)
4. Generate ideas to improve and automate these tasks, taking into account new and innovative technologies (Salovaara & Mannonen,2005)
5. Prototype the most promising ideas (Buchenau & Suri, 2000)
6. Evaluate with journalists, determining technology acceptance, practical use and effects, based on the method 'Co-Constructing Stories' (Buskermolen & Terken, 2012)
7. Iterate, improve the product/service over several cycles of this process (Holtzblatt & Beyer, 2014)

We involved a total of 11 journalists at Het Financieele Dagblad (a Dutch financial daily), Algemeen Dagblad (a Dutch general daily), Eindhovens Dagblad (a Dutch regional daily) and the Dutch Organisation for Research Journalism (VVoJ). Analysis of transcripts from exploratory interviews provided us with descriptive

workflows and ideas that seemed promising for the development of automated tools: the workflow to handle incoming press releases, and the workflow to report straightforward soccer news.

By identifying repetitive, rule-bound, inefficient tasks (Frey & Osborne, 2017) combined with an assessment of feasibility and journalists' priority, we chose the tasks of quickly checking some background stories of a given press release, resulting in a prototype of the tool 'Madi', as well as the task of conducting a follow-up interview, resulting in a prototype interview-bot 'Charlotte'.

In the workflow for short soccer reports, we developed, prototyped and tested a data and template-based text generation service: an interface, called 'PASS' (Van der Lee & Krahmer, 2017) that now generates soccer reports, but that will be evolved for other journalistic fields (finances, police reports) later on. 'PASS' enables friends and family of people, who play soccer as a hobby, to keep in touch about the latest games and ranking, within their local contexts.

In evaluating and testing these prototypes with journalists and, in the case of PASS also with other end-users, not only did we validate the experience and usability of these systems but also whether the design method provided us with the right product idea for that specific situation, following Christopher Frayling's concept of conducting research through design (1993).

Results

Press-release background summary tool 'Madi' was accepted positively and we predict this kind of tool will become commonplace and widely used: "Providing structuring of information and summaries is very valuable" said one journalist (Hermens 2016).

For interview-bot Charlotte, journalists saw many applications, from following up on press releases, "I can put out some feelers to see if it's going to get anywhere" according to one journalist, to collecting evidence for larger stories, as well as large-scale investigative journalism, such as when they would normally send out a questionnaire (Verdonk, 2016).

Evaluations with sports journalists, hobby soccer players and spectators revealed that there is a need for the kind of hyper-local soccer news that PASS provides. Although we were able to get automatic Dutch-language generation working for news articles about soccer (Van der Lee & Krahmer, 2017), the next step in getting this system live will have to focus on real-time collection and verification of data during amateur soccer matches.

Conclusions

This research was started with the goal of designing a method that can be used to find opportunities for designing and validating tools that help journalists do their work better, as well as utilise machine-written news in contexts where there is currently an unfulfilled need for news.

A positive effect of our method was that the evaluation of these tools, which we did with a wide range of journalists, uncovered more applications for the technology than we had originally foreseen.

The main contribution of our research is our custom-made design method; a practical guide on how to design automated tools for journalism in a human-

centred way. Our method allows for a journalist-focused, positive perspective on algorithmic news: instead of viewing journalism as a practice in need of replacing, we provide a holistic way to look at journalistic ways of working where there are many promising opportunities for innovation and enhancement using natural language generation and other artificially intelligent technologies.

Taking this holistic perspective might prove to be key when aiming for evolution towards journalist-machine 'centaurs' (Kelly, 2017) that will be able to achieve more than either humans or machines alone.

References

Boom, T. (2015). Fontys Hogescholen ontvangt zeven ton voor onderzoek naar robotjournalistiek. Nederlands Medianieuws. Retrieved d.d. May 2015 from: http://www.nederlandsmedianieuws.nl/media-nieuws/Fontys-Hogescholen-ontvangt-zeven-ton-voor-onderzoek-naar-robotjournalistiek.html

Buchenau, M., Suri, J. F. (2000). Experience prototyping. In Proceedings of the 3rd conference on Designing interactive systems: processes, practices, methods, and techniques (pp. 424-433). ACM.

Buskermolen, D. O., Terken, J. (2012). Co-constructing stories: a participatory design technique to elicit in-depth user feedback and suggestions about design concepts. In Proceedings of the 12th Participatory Design Conference: Exploratory Papers, Workshop Descriptions, Industry Cases-Volume 2 (pp. 33-36). ACM.

De Botton, A. (2014). The news: a user's manual. Penguin UK.

Dörr, K. N. (2016). Mapping the field of Algorithmic Journalism. Digital Journalism, 4(6), 700-722.

Fontys FutureMediaLab. Research on Robot Journalism (2015). Retrieved d.d. March 2017 from: http://futuremedialab.nl/onderzoekrobotjournalistiek/

Frayling, C. Research in Art and Design. Royal College of Art Research Papers 1, 1 (1993),1-5.

Frey, C. B., Osborne, M. A. (2017). The future of employment: how susceptible are jobs to computerisation? Technological Forecasting and Social Change, 114, 254-280.

Hermens, N. (2016). Robotjournalistiek, een blik op de toekomst. Unpublished Bachelor's thesis, Fontys ICT, Media Design department, Eindhoven.

Holtzblatt, K., Beyer, H. (2014). Contextual Design: Evolved. Synthesis Lectures on Human-Centered Informatics, 7(4), 1-91.

Kasem, A., Waes, M., Wannet, K. (2015). What's New(s). Scenarios on the Future of Journalism. Van de Bunt Adviseurs, issued by the Dutch Journalism Fund (Stimuleringsfonds voor de Journalistiek).

Kelly, K. (2017). The inevitable: understanding the 12 technological forces that will shape our future. Penguin.

Landman, L., Kik, Q., Hermans, E. A. H. M., & Hietbrink, N. R. (2015). Nieuwsvoorziening in de regio 2014:" Gelukkig zijn hier geen journalisten". Diemen: AMB.

Linden, C. G. (2017). Decades of Automation in the Newsroom: Why are there still so many jobs in journalism? Digital Journalism, 5(2), 123-140.

Salovaara, A., Mannonen, P. (2005). Use of future-oriented information in user-centered product concept ideation. Human-Computer Interaction-INTERACT 2005, 727-740.

Van der Kaa, H., Krahmer, E. (2014, October). Journalist versus news consumer: The perceived credibility of machine written news. In Proceedings of the Computation+Journalism conference.

Van der Lee, C., Krahmer, E. (2017) PASS: A Dutch data-to-text system for soccer, targeted towards specific audiences. Manuscript submitted for publication.

Verdonk, A (2016). Kwootjes jagen? Laat dat maar over aan de chatbot. Nieuwe Journalistiek. Retrieved d.d. December 2016 from: http://nieuwejournalistiek.nl/automatisering/2016/09/05/kwootjes-jagen-laat-dat-maar-over-aan-de-chatbot/

Zoon, H., Cremers, A., & Eggen, B. (2014). 'Include', a Toolbox of User Research for Inclusive Design. In Proceedings of the Chi Sparks 2014 Conference, 113.

Biographies

Hanna Zoon studied at the Design Academy, ran her own design studio and completed the TU/e Master Industrial Design where she caught a fascination for user research and interaction design. She completed her studies with a cum laude graduation project on user research for small ICT companies at Dutch research institution TNO. Today she is a researcher and teacher at the Fontys ICT & Media Design department as well as the FutureMediaLab.

Jeske van Dongen studied musicology and Dutch language and culture. In her PhD thesis, she focused on the transition in different records of songs, both melodies and lyrics, in oral as well as in written tradition. She was a teacher in Dutch language and works as researcher and writer. She is research leader of the 'Automated Journalism' project funded by SIA, in which researchers of Tilburg University and Fontys University of Applied Sciences join forces with important players in the journalistic workfield: 'De Persgroep', 'Vereniging van Onderzoeksjournalisten' and 'NDP Nieuwsmedia'.

Jorge Alves Lino is professor of applied sciences (lector) in Media, Interaction and Storytelling and the head of the FutureMediaLab at the Fontys University of Applied Sciences. His research focuses on the transformative qualities of experience design and its impact on society. Jorge has been building a broad background that ranges between the cultural, marketing and industrial sector. His academic mission is to bridge academia, industry and society in meaningful relations and collaborations, with the ultimate goal of generating relevant new insights and knowledge that are impactful for the social, cultural and professional contexts they are developed with and for.