

We are one of the youngest universities in Germany and think in terms of possibilities, not limitations. In the heart of the Ruhrregion, we develop ideas of the future at our 11 faculties. We are strong in research and teaching, live diversity, support potential and are highly committed to an educational equality that has earned this name.

The Graduate School (DFG Research Training Group/DFG-Graduiertenkolleg) **User-Centred Social Media** (UCSM) at the University of Duisburg-Essen invites applications for a new PhD programme starting in October 2018. We offer

Twelve PhD Positions

which are paid according to German 100% TV-L E13 (starting from 46,000 €/year before taxes), for a duration of three years.

The Graduate School UCSM provides an interdisciplinary research environment with computer science and psychology as the main contributing disciplines. From this interdisciplinary perspective, it addresses research challenges related to Social Media which are understood as complex socio-technical systems characterized by features such as user-generated content, social interaction and awareness, and emergent functionality. Significant research gaps have been identified with respect to analyzing and understanding the characteristics and determinants of user behaviour, both at the individual and the collective level, as well as regarding the user-centred design of social media systems. Our research will build on theories and methods from the following fields:

- Media and communication psychology
- Decision making and decision support
- Human-computer interaction
- Information retrieval and mining
- Social network analysis and visualization
- Privacy and security engineering
- Media-supported collaboration and learning

Applicants should have a background (master or comparable degree) in Computer Science, Information Systems, Cognitive Science, Communication Science or Psychology and, ideally, prior knowledge and experience in one or more of the areas listed above.

The University of Duisburg-Essen aims to promote the diversity of its members (see <http://www.uni-due.de/diversity/international.shtml>). It also aims to increase the share of women in the scientific personnel and therefore explicitly encourages women to apply. Women will be preferentially considered when equally qualified according to the state equality law. Applications from disabled or equivalents according to § 2 Abs. 3 SGB IX are encouraged.

Applications should comprise a curriculum vitae, documentation of academic degrees and certificates and two academic contacts that can provide references. In addition, a written statement of the applicant's research interests and related experience should be submitted as well as electronic copies of the applicant's master thesis and/or relevant publications. Applicants are also invited to express their interest in one or more of the provisional research topics listed on the Website (<http://ucsm.uni-due.de>).

Applications, together with supporting documents, are to be submitted in electronic form to our Website <http://ucsm.uni-due.de> ("Open positions -> Application") until 2018-15-05.



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Zertifikat seit 2010

PhD Topic: Social Bots and Algorithms in Social Media Communication

Social Media have become an important communication infrastructure for society, business and science. For example, companies use them to influence customers' purchase intentions and political candidates use them to disseminate information to their supporters. However, the unregulated nature of social media communication has given rise to a flood of information of questionable credibility. Social Bots, computer algorithms that mimic human behavior, are a relatively new phenomenon in this context. They are said to have the ability to influence people's opinions and behaviour.

Social Bots have become increasingly attractive for people and organizations aiming to automatically distribute their messages to many recipients at very low costs. Besides the current focus on public communication and politics in research on Social Bots (e.g. during the Brexit referendum or the US election), algorithms and artificial intelligence are also of interest for companies to support customers or employees (e.g. service bots or virtual agents). It can be expected that further improvements of algorithms and a larger amount and variety of data will lead to "smarter" bots in the near future.

This PhD topic addresses these developments. Candidates are encouraged to develop their own research question in this area.

Relevant research questions that could be addressed are:

- How can Social Bots be identified and what reach do Social Bots have in public social media?
- How do humans react to Social Bots and virtual agents?
- What are the strategies behind the usage of Social Bots in different domains (e.g. business, politics, crisis situations)?
- What are the ethical implications of Social Bots and algorithms in social media communication?
- What are the potentials and challenges for society and companies that are related to Social Bots?

Potential methods

Social Media Analytics (e.g. Social Network Analysis, Sentiment Analysis, Text Mining), Machine Learning, Experiments, Interviews, Surveys

Related literature

- Stieglitz, S., Mirbabaie, M., Ross, B. & Neuberger, C. (2018). Social Media Analytics - Challenges in Topic Discovery, Data Collection, and Data Preparation. *International Journal of Information Management*, 39, 156-168. Open Access: <https://www.sciencedirect.com/science/article/pii/S0268401217308526>
- Stieglitz, S., Brachten, F., Ross, B. & Jung, A. (2017). Do Social Bots Dream of Electric Sheep? A Categorisation of Social Media Bot Accounts. Proceedings of the 28th Australasian Conference on Information Systems, Paper 206.
- Ferrara, E., Varol, O., Davis, C., Menczer, F. & Flammini, A. (2016). The Rise of Social Bots, *Communications of the ACM*, 59:7, 96–104.

For more information, please visit https://www.uni-due.de/proco/index_en.php

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