**Summary**

Summary of the doctoral dissertation titled “Non-binary systems. Researching exclusion in algorithms", written under the supervision of dr hab. Mirosław Filiciak, prof. USWPS.

The aim of the doctoral dissertation titled “Non-binary systems. Researching exclusion in algorithms” is to define and analyze the sources of algorithmic bias, as well as the ways of dealing with its consequences and preventing it.

The theoretical part of the thesis is embedded in critical reflection on technology and consists of three elements. The first one introduces the basic concepts and places the problem of the work in a broad discussion of critical approaches to technology. The second element provides an overview of selected trends in feminist thought and the ways in which they are used in the analysis of technology, with particular emphasis on cyberfeminism, posthumanist reflection on information and data feminism. This part of the argument is supplemented by the approach to technology analysis proposed by queer theory, race critical code studies, and new materialism analyzed from the perspective of research on artificial intelligence and machine learning algorithms. The last element of the theoretical core of the work points to the entanglement of the history of modern digital technologies with the development of statistics, the emergence of the idea of an “average person” and reflection on issues related to categorization and classification systems. The reasoning completes the overview of the ways in which the humanities approaches the definition of data and algorithms, as well as the first attempt to answer research questions in the light of available analyzes.

In the empirical part of the work, I use the grounded theory methodology and analyze existing documents - research, analyzes, official documents - enriched with expert interviews conducted with Polish subject experts, representing a variety of scientific disciplines.

Summarizing the collected and analyzed empirical material, I draw a picture of algorithmic bias as a multi-source, multi-stage and multi-faceted phenomenon, in which the key role is played by the data used to train algorithms, the people who define and collect the data, but also the organizational environment in which the algorithms are created, and - equally important - the cultural and social contexts in which they are implemented. The argument is supplemented by the interpretation of the collected empirical material in the light of the previously described critical theories.

Keywords: algorithms, data, algorithmic bias, data feminism, artificial intelligence