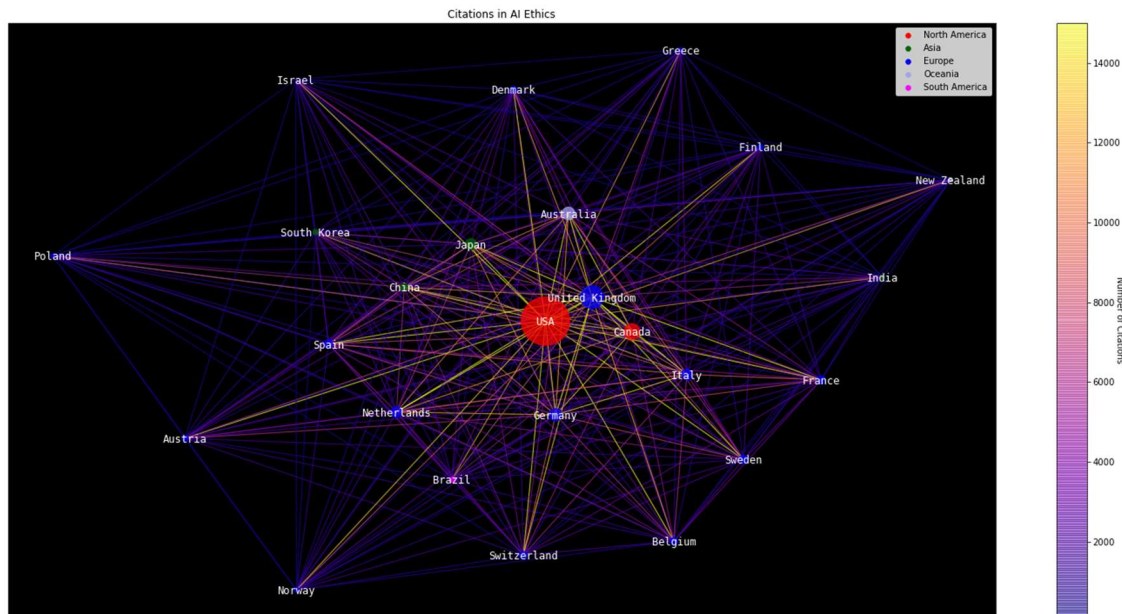


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Citations in AI Ethics: Representation in FATE



Explanation: The figure above is a citation network of research papers in the AI Ethics field. Nodes represent countries, and edges represent citations between a pair of countries. This network shows the top 25 countries by their in-degree's, meaning the number of citations they receive from other countries.

Results: There is a strong core-periphery structure, with the USA, UK, and Canada forming the center, and are surrounded by China, Japan, Australia, and 4 large European countries. The periphery is made of mostly smaller Western countries like Norway, Poland, Belgium, and New Zealand, while India and Brazil represent Asia and South America respectively.

Legend:

Nodes – Nodes are countries, which are color-coded by the region of the world they belong to. Their size corresponds to the in-degree of the country, in other words how many citations they receive from both themselves and other countries.

Links – A link between two countries represents a citation relationship between papers published in the two countries. The color of the link indicates how many citations there are between the

two countries: a more yellow link is a stronger connection, with more citations flowing between the two, while a darker purple link is a weaker relationship.

Data: The network was made using the Microsoft Academic Graph (MAG). MAG contains metadata about millions of academic papers, including data on their authorship such as the publishing institution, as well as citation metadata providing links between papers in the dataset showing the source of a citation and the target paper. Papers were deemed to be in AI Ethics if they passed a bag-of-words filter applied to their abstract. There are 3 bags, each with about 10 words covering different aspects of the topic – Technological, with words like ‘artificial intelligence’ and ‘algorithm’, Social containing ‘society’, and ‘legal’, and Ethics containing ‘ethic’, ‘fairness’, and ‘transparency’. Countries and regions were determined by the publishing institution of each paper. The plot was created using matplotlib and networkx.

Discussion: I believe this figure is of significance because it shows that the field of AI Ethics is largely occupied by Western countries, especially the USA and Europe. Our ethics are shaped by our culture, so what one country may deem ethical may not be for another. In order for AI to be the most beneficial to everybody, it is vital to have diverse viewpoints on AI governance issues to make sure that the goals of the AI are being met in an equitable way for everyone who is impacted by it.

MAG Data is openly available. Code to produce figure is available at [Nan54/InfoViz \(github.com\)](https://github.com/Nan54/InfoViz)