

Expert Insights into Fairness Issues in Computational Social Science Research

An Interview with Allison Koenecke

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Algorithms can induce and reproduce bias and act unfairly on people or groups of people. Although this may be widely recognized by now, the mechanisms behind digital inequity are often black-boxed and their full impact remains unexplored. We talked with Allison Koenecke about (lack of) transparency in socio-technical systems and the need to 'hear' communities that are potentially disadvantaged.

Allison Koenecke is an Assistant Professor of Information Science at Cornell University. Her research interests lie at the intersection of economics and computer science, focusing on algorithmic fairness. Allison received her PhD from Stanford University.

The interview was conducted by Indira Sen and Leon Fröhling, who met Allison Koenecke during the International Conference on Web and Social Media (ICWSM-23) on June 7, 2023 in Limassol, Cyprus. The interview has been edited for clarity and length.

Keywords: algorithmic fairness, transparency of algorithms, digital inequities, racial disparities, automated speech recognition, auditing technologies

GESIS: Thank you, Allison, for giving this interview. We would like to start by asking you about your current research focus, specifically in the context of algorithmic fairness and the ethics of studying society with computational methods.

Allison Koenecke: I broadly use computational tools like machine learning and causal inference to study fairness. Often this manifests as algorithmic fairness in two large domains: one is online services and the other is public health. Maybe more relevant to this conference is the work on algorithmic fairness in online services, as that involves a lot of auditing studies across a range of technologies – spanning speech-to-text systems, online ads, recommendation systems, or A/B-experimentation. A lot of that work uses computational tools to then investigate in particular what ‘pain points’ might arise in

these sorts of online technologies, and hopefully provide methods to ameliorate these biases that tend to disproportionately affect certain demographic groups.

GESIS: How did you first enter this field of researching fairness and ethics? What made you focus on these topics?

Allison Koenecke: A lot of my research inspiration comes from thinking about what worries me. If you read the news and get worried – I find this a useful way to get a fire started in you. For my fairness work specifically, the first paper I wrote that I consider to be squarely in the fairness and ethics space is my work on racial disparities in automated speech recognition [1]. That work was directly inspired by the Buolamwini and Gebru paper on gender shades [2], looking at racial and gender-based disparities in computer vision. It is really impactful and interesting research, and my co-authors and I thought about porting that over to other modalities in technologies.

That is something that we as a broader community should think about: how we reconcile differences across very valid opinions and experts.

GESIS: From your perspective, what are the most important aspects of fairness and ethics in this computational context, and what are the aspects that you are most concerned with at the moment?

Allison Koenecke: There are so many important things going on in this space, so it is hard to just pick one. At a high level, I think just making sure that you are doing something that is socially good and impactful to the communities that are potentially being harmed is really important – making sure that you 'hear' communities that have a problem and potentially work with them to think about solutions. As for worries: I would say learning how to get past disagreements even within academia across experts. The talk I gave at this conference [3] involved thinking about how to choose among different definitions of fairness, because all of them are valid definitions. However, there are personal choices that need to be made when deciding how to make a decision that impacts a lot of people – and oftentimes even experts will disagree. That is something that we as a broader community should think about: how we reconcile differences across very valid opinions and experts.

GESIS: Do you see any types of violations or lack of thought given to principles of fairness and ethics in computational social science research?

Allison Koenecke: This is a broad question and I guess I will answer that by saying that I particularly appreciate the work that focuses on working together with communities and gaining their trust. I think those efforts are the ones with the most real-world impact.

GESIS: Do you have suggestions on steps that we as computational social scientists in general could take in our daily work to better account for issues of fairness and ethics in our research?

Allison Koenecke: At a daily level – and this is something I mentioned in the panel [4] as well – I think it is very important to talk to people about your research ideas, even from an early stage, when you are just ideating about what might be interesting. This is also a chance for you to spark new collaborations when you talk to people about your ideas. It is a chance for people to fact-check you or caution you if you might be thinking about scraping some data in a way that might not be ethical. It is a chance for people to give you suggestions on who might be experts in the field that would be helpful for you to talk to. These are all just really useful guardrails to help make sure that your research is pointed in a more successful, and potentially more ethical, direction.

I particularly appreciate the work that focuses on working together with communities and gaining their trust.

GESIS: Are there any best practices or strategies that people can look into to ensure fairness and ethics from the very beginning for integrating it into the design of their research, and to not just treat it as an afterthought?

Allison Koenecke: Again, it is talking to people – including the IRB. And I think you cannot go wrong with doing extensive literature reviews and reviews of the datasets that you are going to use. If you are creating datasets, make sure that you also share data sheets [5] to go along with your data sets. Really doing the due diligence early on is important.

GESIS: Do you have any advice for literature reviews, specifically when targeting literature in a discipline that is different from your own, and you are not that familiar with all of its norms?

Allison Koenecke: This is a very common problem for anyone working interdisciplinarily. It is kind of the same advice: talk to people and ask people who might know better than you. It is often useful to start by looking at different conferences and then go from there, or by looking at specific senior authors who seem to publish a lot in that domain and see what other work they, their students, or their co-authors have. This is often a useful way to make your way through the network of papers to what you are looking for.

GESIS: Apart from finding the right people to talk to – could you mention some additional resources that people could look at to learn more about the importance of fairness and ethics in computational social science research?

Allison Koenecke: There are a lot of fantastic general interest books that have been written on the topic.

General audience books that cover these topics and that are really impactful are “Algorithms of Oppression” [6], “Race after Technology” [7], “Weapons of Math Destruction” [8], “Atlas of AI” [9], “Ghost Work” [10], and “Design Justice” [11], among many others. I also think two textbooks are really useful; one is called “Algorithmic Fairness: Choices, Assumptions, and Definitions” [12] and the other is called “Fairness and Machine Learning” [13]. Otherwise, I would recommend just staying up to date on some of the conferences that are in the area, like FAccT (ACM Conference on Fairness, Accountability, and Transparency), EAAMO (ACM Conference on Equity and Access in Algorithms, Mechanisms, and Optimization), and AIES (AAAI/ACM Conference on AI, Ethics, and Society).

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GESIS: One last question: if you had a wish to the universe, for a research artifact like a dataset, a model, or something else that could help you with your research agenda – what would this be? Do you have anything like that on your wish list?

Allison Koenecke: I am going to refer to my friend and colleague Nikhil Garg, who is at Cornell Tech: In a lot of our work in fairness and problems of allocation, we are thinking about how to split the pie in a way that is fair and equitable. But it really would be fantastic if there was more work being done on how to expand the pie – not just in how to split the pie fairly, but to make sure that the pie is big enough, so that, no matter how you split it, everyone can still be paid a living wage and live a good life – so let's have more time spent on finding the applications where we actually think algorithms and AI are appropriate and clearly a value add.

GESIS: Thank you very much for the interview, Allison!

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