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AI Governance Systems: Ontological Explorations in the Canadian Context (Poster)

As artificial intelligence systems (AIS) become widely adopted around the world, potential misuses of AIS pose increased risks of social, political, and economic harms. To mitigate those risks and maximize the benefits of AIS adoption, many governments, private sector firms, and multistakeholder groups have created principles, strategies, and frameworks for governing the design, development, deployment, and use of AIS. At the level of nation-states, nationwide governance of AIS is often practiced through a variety of institutional arrangements, including strategic planning initiatives, policy and regulatory instruments, innovation funding mechanisms, global talent recruitment, and cross-sectoral partnerships. These institutional arrangements extend the macro-institutional scope of national AI strategies such as the *Pan-Canadian AI Strategy* or China's *New Generation Artificial Intelligence Development Plan* into more granular practices of public administration, assembling a versatile toolkit of governance mechanisms from across multiple departments, levels of government, and economic sectors in order to implement strategies for governing AIS. Collectively, these mechanisms for governing AIS within a particular context such as the context of an individual nation-state compose what I call an *AI governance system*: a set of entities, relations, and capabilities which integrate AI governance phenomena from across many domains such as policy, regulation, law, ethics, standardization, strategy, innovation, commerce, and management into a shared ontology.

My poster depicts findings from an in-progress research project in which I am developing an archetypical ontology for AI governance systems. So far, the project has involved three

phases: a comparative analysis of the AI innovation strategies of Canada and China; a literature review of AI ethics frameworks from several industry, government, and multistakeholder sources; and a meta-theoretical analysis of various theoretical perspectives from the literatures on service science, public governance, and institutional theory. My poster synthesizes some of the most significant findings from across these three phases into a preliminary ontology of AI governance systems that characterizes AI governance as a tripartite practice of AI innovation governance, AI service governance, and organizational-institutional governance. The poster illustrates the ontological similarities and differences between AI innovation systems, AI service systems, and organizational-institutional systems, highlighting how the components of these various system ontologies interconnect as components of a functionally distinct AI governance system. The poster also applies this preliminary AI governance system ontology to an analysis of the Canadian AI governance system, describing AI governance in the Canadian context as dependent upon a multicentric network of deliberative actors to implement the institutional changes needed to sustain Canada's leadership in AI research, achieve national AI innovation and talent recruitment goals, expand Canada's AI service ecosystem, and position Canada as a global authority on AI ethics, AI policy, and AI standards. My poster describes future directions for this research project, including the continued refinement of an AI governance system ontology through comparative analyses of additional national, international, and multinational-corporate AI governance systems, as well as by extending the ontology into an evaluation framework through an in-depth multi-case study of AI governance practices in organizations of different sizes and in different sectors.

Biography

Robert Blair Frost is a doctoral student at the University of Toronto's Faculty of Information. Their research interests include the political economy, public policy, and geopolitics of AI, ecological approaches to governing AI, critical approaches to AI systems analysis, as well as the role of value systems in AI governance.