

PhD in Computer and Control Engineering

Research Title: Data ethics

Funded by	Fondazione Bruno Kessler
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Supervisor	Juan Carlos De Martin (Politecnico di Torino) Bruno Lepri (Fondazione Bruno Kessler)
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Contact	https://nexa.polito.it https://mobs.fbk.eu/
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Context of the research activity	<p>The world is experiencing an unprecedented transition where human behavioral data has evolved from being a scarce resource to being a massive and real-time stream. This availability of large-scale data is profoundly changing the world we live in; finance, economics, marketing, public health, politics, to name a few, have all been disrupted to some degree by this trend.</p> <p>Moreover, the automated analysis of anonymized and aggregated large-scale human behavioral data offers new possibilities to help decision makers to tackle problems of societal importance, such as monitoring socio-economic deprivation and crime levels, mapping the propagation of diseases, etc. Thus, researchers, companies, governments, financial institutions, and non-governmental organizations are actively experimenting algorithmic decision-making tools, often relying on the analysis of personal information.</p> <p>However, researchers from different disciplinary backgrounds have identified a range of social, ethical and legal issues surrounding data-driven decision-making, including privacy, transparency and accountability, and bias and discrimination. For example, the use of data-driven decision making processes can result in disproportionate adverse outcomes for disadvantaged groups, in ways that look like discrimination.</p> <p>The PhD proposal aims at investigating the impact of this data revolution in our society, combining data analytics techniques</p>
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	<p>with an epistemological approach from social sciences and humanities.</p> <p>The PhD will be sponsored by Fondazione Bruno Kessler (FBK), in the ambit of a larger formal agreement between FBK and the Department of Automatics and Informatics (DAUIN) at Politecnico di Torino.</p>
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Objectives	<p>The goal of the Ph.D. proposal is twofold:</p> <ul style="list-style-type: none"> i) understanding engineering, political, ethical and economical consequences of personal data tracking; ii) understanding engineering, political, ethical and economical consequences of data-driven decision making based processes, with a particular focus on the definition of policies in development countries. <p>Specifically, the Ph.D. project will focus on (i) the ethics of data and (ii) the ethics of algorithms.</p> <p>The ethics of data focuses on ethical problems posed by the collection and analysis of large datasets and on issues ranging from the use of personal data in behavioral and biomedical research to profiling and advertising. Here, key issues are the possible re-identification of individuals and the risks of group discrimination (e.g. ageism, ethnicism, sexism).</p> <p>The ethics of algorithms addresses issues posed by the increasing complexity and autonomy of algorithms broadly understood (e.g. predictive policing algorithms, credit scoring algorithms, and artificial agents such as Internet bots), especially in the case of machine learning applications. In this case, some crucial challenges include moral responsibility and accountability of both designers and data scientists with respect to unforeseen and undesired consequences.</p>
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Skills and competencies for the development of the activity	<p style="text-align: center;">M.Sc. on one of the following majors: Philosophy, Communication Science, Law, Economy, Psychology, Sociology, Political Science, Computer Engineering, Software Engineering, Informatics.</p> <p style="text-align: center;">Solid knowledge of empirical research methods.</p> <p style="text-align: center;">Basic knowledge of programming logic, data analytics and machine learning.</p>
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