**Position title:** AI ethics in health: Transformations in medical decision-making in the AI era

**Characteristics of the position:** post-doctoral contract

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Assignment:
Chair “Ethics and AI”, MIAI and IPhiG, UGA

**Context and work environment**

**Structure description**

1) IPhiG
The Institute of Philosophy of Grenoble (IPhiG) is one of the research units of the University of Grenoble Alpes. It is composed of 11 statutory members, from various components of the UGA, more than 20 doctoral students, and several post-doctoral students. It is a member of the regional doctoral school ED 487 "Philosophy: history, representation, creation". Its activities are organized along three axes: "Practices: values, norms, institutions", "Mind and cognition" & "History of philosophy".

2) Chair “Ethics and AI”, MIAI
The "Ethics & AI" Chair is one of the chairs of the multidisciplinary Grenoble Institute of Artificial Intelligence (MIAI). It aims to develop over a period of 4 years (2019-2023) a philosophical understanding of Artificial Intelligence both through a conceptual and normative approach and by reference to various "terrains" of observation. It reflects the activities of the Institute of Philosophy of Grenoble (IPhiG), a research unit of the University of Grenoble Alpes. Its activities include meta-ethics, normative ethics, applied ethics, political philosophy, philosophy of law. This variety of points of view gives the Chair a potential for in-depth research on topics to which the relationship between ethics and AI is giving rise today. The scientific director of the chair, specialized in political philosophy, public ethics and philosophy of innovation, ensures the productive interaction of this variety of perspectives. The Chair contributes with 3 others to the "AI and Society" axis of MIAI, and maintains a close relationship with the research conducted on the other axes of the institute. Through the initiatives and projects it develops, the chair currently brings together 4 PhD students in philosophy and information and communication sciences; it also brings together 8 contributors, researchers from other disciplines, such as robotics and among the humanities and social sciences, clinical psychology, information and communication sciences, management sciences and marketing.

**Team description (N+1 and colleagues): under the authority of .... Team composed of X agents (X A, X B, X C...)**
The position offered is directly related to the research activity of the chairholder, as well as to that of his contributors and the 4 current PhD students.

**Position’s mission and main activities**

**Scientific argument :**

The main objective of this one-year (12 months) postdoctoral contract is to contribute to answering a global question: Are the various modalities of medical decision making likely to be fundamentally disrupted by the new informations produced by AI?

Some believe that medical decisions have been "denatured" (Kempf & Kempf 2016). Although IT and digital applications are at the corner of most diagnostic or care pathways, how they actually affect decision-making processes is not clearly assessed. Also, concretely, the extent of this potential "denaturation" is to date difficult to establish.

To address this issue, it is essential to first analyze the evolution of decision-making processes in light of:

- the evolution of society's expectations of physicians
- the understanding that physicians have of their missions.

From this preliminary analysis, the initial global question will need to be broken down into several concrete questions in order to avoid theorizing at too great a distance from the pragmatic realities of medical practice. As examples of non-exhaustive questions:

1. If today the decision-making process is guided by the statistical results of cohorts of patients to which a singular patient is assimilated (evidence-based medicine), how will this change when algorithms have the power of reliable individual prediction? The cognitive process of assimilation leaves a vast field to the intuitive knowledge of the practitioner, which draws its legitimacy from the accumulated experience of successes and failures, but also from the empathy mobilized by the singularity of both the pathology and the affected person.

As a consequence of this change, where the cognitive process of assimilation disappears in favor of personalized predictive information supposedly more performative (4P Medicine), other questions arise:

   a. Does this change the notion of responsibility (Bourassa Forcier et al. 2020)?
   b. How is the notion of medical authority likely to evolve? Doesn't the high performance and reliability of AI tools, both in data collection and processing, give them a form of authority over human judgment, which is always more fallible than the decision-making elements provided by AI?

2. The relationship between the physician and his patient is also undergoing changes. If the medical decision is part of a relationship between the doctor and the patient, we could say that, as a result of its increasing insertion in the phases of observing symptoms, understanding illnesses and analyzing treatment follow-up, AI is inviting itself into this relationship, but how does it modify the conditions? Is the trust necessary for the relationship already evolving on the part of patients, shifting from the human (the doctor) to the machine (Hatherley 2020)?

3. Is it enough for algorithms to be "reliable" (Bernelin & Desmoulin-Canselier 2021) to take control of the decision? In other word, who tomorrow, will be recognized as competent to express the medical decision, the human or the machine?

4. What could be the consequences of this algorithmic pre-eminence on the collective intelligence (multidisciplinary meeting) which is today the gold standard of difficult decisions?

5. What impacts do these transformations have on the training of physicians and the health and care professions (Zeitoun & Ravaud 2019)?
Finally, to what extent are the ethical approaches that traditionally surrounded medical decision-making being modified? Do the terms that constitute this approach need to be redefined or reinvented today (Duguet et al. 2019)? And in these cases, according to which axes of reflection? For example, how should the medical relationship be managed in light of new forms of prediction (notably genomic, as these forms modify knowledge of the possibility of the onset of a disease) and given the multiplicity of tools available? What new partition between practitioner, machine, and patient (McDougall 2019)? How to operate through AI value choices in always specific clinical contexts (Tsafack Chetsa 2021)?

Through the study of cases in one or more areas of medicine and by monitoring emerging technological solutions as well as the literature in health AI ethics, the postdoctoral researcher will provide answers to these questions (and others that may emerge during the course of the research) by embedding their work in the ethical dimension in several ways:

1) by determining what new risks arise in decision-making situations with AI;
2) by illuminating the ways in which older forms of ethics are rendered obsolete by these situations;
3) by devising new ethical protocols that incorporate value choices in specific contexts.

Through his or her work in the ethics of AI in medicine, the postdoctoral researcher will collaborate with the members of the "Ethics&IA" Chair (its director, its permanent research contributors, doctoral students and postdoctoral fellows), and will contribute to the scientific animation of the Chair.

References


**Scientific disciplines:** philosophy, sociology, computer science, robotics, applied mathematics, statistics, medical studies

**Sub-disciplines/research areas (in no order of priority):** ethics of care/health and bioethics, political philosophy, philosophy of techniques, ethics of AI (computer ethics/algorithmic ethics, artificial ethics, ethics of robotics, ethics of AI uses), social philosophy.

Modèle fiche de poste 2020
Keywords: ethics, AI, robotics, digital, health and care, patients, patient-experts, health institutions and care structures, doctor-patient relationships, social and emotional support of patients, body, innovation, autonomy, trust, compliance, public and private liberties, privacy, vulnerability.

Terms of the competition: Candidates are invited to propose to the Jury, with their Academic Curriculum, a personal research project (10 pages maximum), including a description of their future activity within the "Ethics & AI" Chair that falls within the strategic orientations of the latter. If the position concerns philosophy, the multidisciplinary aspects of the candidate's profile and the multidisciplinary perspectives of his/her project will be highlighted, in dialogue with the disciplines of the contributors to the Chair.

The proposed project must be able to fit into the "AI for humans and the environment" axis of MIAI, and more particularly be able to create a sustained dialogue between axes 4 ("AI and society") and 5 ("Health").

Fluency in French and English (oral and written) is a prerequisite to apply, as the admission interview will be conducted in both languages.

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Start date: September 1, 2021.

Missions / duties performed:

The purpose of the postdoctoral contract offered to the competition is:
- To contribute to the advancement of scientific knowledge in the field of AI ethics (as defined above) in health and care, including new conceptual and normative approaches, which are grounded in fields of study.
- To maintain the dialogue between philosophy, the SHS disciplines developed in the chair (social and clinical psychology, management sciences, information and communication sciences) and the scientific and technical disciplines developed within the MIAI institute (computer science, robotics, cognition), as well as with the world of health and care, whether academic (medical and pharmaceutical research laboratories), hospital (CHUGA) or other (patients, caregivers, associations, start-ups and other companies in the health and care sector).
- To feed the IPhiG’s axis 1 while possibly interacting with the two other axes.

Main activities (in order of importance):
1. Publication in academic journals, especially in English language.
2. Contribution to the scientific animation of the "Ethics & AI" chair: organization and intervention for conferences, seminars.
3. Setting up scientific projects (ANR, European programs, etc.).
4. Contribution to the outreach of the "Ethics & AI" Chair: oral intervention in front of non-academic audiences (health care personnel, patients, students, etc.).
5. Invitation to participate occasionally in training sessions (doctoral training on the Grenoble site, MIAI continuing education).

Event - Objective result(s) by the end of the contract:
- At least 2 research articles in English (published or submitted) over the duration of the contract,
- Contribution to the organization and animation of the program "Etats généraux de l’éthique de l’AI".

Evaluation and control of the achievement of the result(s):

Publication of the offer: October 31, 2021
Deadline for sending applications: November 26, midnight (Paris time)
Examens de candidature et jury d'éligibilité : autour du 29 novembre
Résultats et invitation à l'oral pour les candidats éligibles

Entretiens d'admission (entretien de 15 minutes) : pendant la semaine du 6 décembre
Résultats de la compétition : 15 décembre
Date de début : 1er janvier 2022
Date de fin du contrat : 31 décembre 2022

Restriction ou contraintes liées au poste

La présence physique à l'Université de Grenoble Alpes pendant toute la durée du contrat est un élément nécessitant, car la position à occuper comporte à la fois la coordination d'un équipe scientifique et des fonctions d'animation scientifique sur le campus et dans la région Grenoble, et dans la région Auvergne-Rhône-Alpes. Une déclaration explicite des candidats sera exigée lors de l'interview de recrutement.

Profil souhaité

**Compétences souhaitées (priorité)** :
- Excellence académique
- Relevé du projet de recherche aux orientations stratégiques du “Ethics & AI” Chair
- Expérience de recherche internationale : publications, participation à des séminaires et colloques, séjour dans des unités de recherche
- Capacité à engager une discussion multidisciplinaire comme démontré par des activités précédentes

**Compétences professionnelles**

- Expérience en français et anglais, écrit et oral.

- **Compétences personnelles**

  - Autonomie,
  - Capacité à conduire un petit équipe scientifique,
  - Capacité à mobiliser les interlocuteurs pertinents dans un environnement académique et péri-académique (secteurs de la santé et du soin, des activités de médiation scientifique, technique et industrielle).

Mandat de supervision :
- Oui ☑ Non ☐

Nombre d'agents supervisés par catégorie : .., A, .., B, .., C

**Expérience professionnelle souhaitée** : ☐ débutant ☑ 2 à 5 ans

Expérience dans la mise en place de projets de recherche (national et européen) est un plus dans le dossier.

**Formation précédente, diplômes** :

PhD nécessaire en philosophie et une autre discipline développant l'éthique de l'AI.

Informations générales

Le niveau de rémunération sera déterminé en fonction de la seniorité et des compétences du candidat, et dans le cadre de la grille de rémunération en vigueur à l'Université Grenoble Alpes. Indication : entre HS 01 et HS 03.

Contact pour les questions relatives au poste :

Modèle fiche de poste 2020
First name, LAST NAME, position:

Prof. Thierry Ménilssier
Head of the Chair « ethics & AI », MIAI/IPhiG

Mail: thierry.menissier@univ-grenoble-alpes.fr