



Offre n°2022-04887

Post-Doctoral Research Visit F/M Equity Analytics : Addressing gender pay equity with visual analytics

Le descriptif de l'offre ci-dessous est en Anglais

Type de contrat : CDD

Niveau de diplôme exigé : Thèse ou équivalent

Fonction : Post-Doctorant

A propos du centre ou de la direction fonctionnelle

Located at the heart of the main national research and higher education cluster, member of the Université Paris Saclay, a major actor in the French Investments for the Future Programme (Idex, LabEx, IRT, Equipex) and partner of the main establishments present on the plateau, the centre is particularly active in three major areas: data and knowledge; safety, security and reliability; modelling, simulation and optimisation (with priority given to energy).

The 450 researchers and engineers from Inria and its partners who work in the research centre's 28 teams, the 60 research support staff members, the high-level equipment at their disposal (image walls, high-performance computing clusters, sensor networks), and the privileged relationships with prestigious industrial partners, all make Inria Saclay Île-de-France a key research centre in the local landscape and one that is oriented towards Europe and the world.

Contexte et atouts du poste

The goal of this project is to explore, develop, and test pay equity visual analytics solutions in order to give decision makers the power to eradicate adjusted gender pay gaps. The PostDoc will be employed by Inria and work within an active and friendly research team (<https://www.aviz.fr/>). We will collaborate with a startup company called PayAnalytics (<https://www.payanalytics.com/>) that provides access to real data and use cases. The project will be advised on the Inria side by Petra Isenberg (<http://petra.isenberg.cc/>) and on the PayAnalytics side by Margrét Bjarnadóttir (<https://www.rhsmith.umd.edu/directory/margret-bjarnadottir>). The PostDoc will also receive advice on the sociology of work methods and research through a collaboration with Guðbjörg Linda Rafnsdóttir (<https://www.hi.is/staff/glr>). Regular travel between Iceland and France will be funded as part of the collaboration.

Mission confiée

Background: Multiple forces, including cultural shifts and fast changing regulatory environments, are pushing organizations to address pay equity. However, in the case of large organizations like multinational companies, static overview graphs or tabulated information alone are not enough to help identify and address pay gaps. In order to eliminate pay gaps, decision makers need to clearly understand problem areas, the potential impacts of different decisions, and possible strategies to correct the problems. Therefore, new and dynamic analytical techniques are needed that go beyond simple summaries and can outline trouble areas and simulate decision making in complex organizations. The goal of this project is to develop new visual analytics solutions that summarize pay structures in a manner that clearly shows the changes that should be made in order for the pay structure to be fair and rational and that allows managers to evaluate recommended action plans, make informed decisions and monitor progress using a visual interactive user interface.

Principales activités

The project contains several research challenges the PostDoc can start to tackle. Priorities and the exact timeline will be determined based on the chosen candidate's interests and research skills. For example, the PostDoc could be highly technical and focus on inventing and developing new visualization techniques with only few user studies, or it could on the contrary be psychology-oriented with little or no focus on inventing new techniques but a strong focus on running experiments with human subjects to answer empirical questions. The main challenges of the project are:

Recommending Action : Currently, visualizations of compensation data are limited to purely descriptive representations of current pay structures or broad statistics. While these descriptive analytics give users an intuitive grasp of the determinants of pay and may help identify inequalities, they do little to motivate and assist decision-making. There is little previous work to build on and we will have to explore

new ways to turn decision making processes into visual analytics solutions. Part of the research and development may focus on how to integrate statistical analysis and mathematical optimization into interactive visualizations in the context of pay equity, with the objective of making the solutions to pay equity issues clear and modifiable by users. The PostDoc would then focus on the development and testing of the visualization solutions while Payanalytics engineers will contribute the required optimization algorithms for the visual analytics platform's backend.

Communicating Gender Pay Gap Fairly: When visualizing data that is of high stakes and deeply debated, it is particularly important not to introduce additional biases or amplify existing ones. Past work by Dimara et al. [1] studied how visualization can or cannot mitigate decision making biases. This line of work will inform ours. Specifically we have to address estimation biases during the assessment of existing gender pay gaps where little prior research exists [1]. For example, we do not even have answers to simple questions such as whether a typical light blue vs. pink color encoding for data about men or women may lead to unconscious bias in analysts. When presenting multiple alternatives we also have to study and consider different presentation factors that may introduce unconscious decision-making bias such as framing effects, attraction effects, or less-is-better effects to name a few [1]. Specifically, in the project we want to study and systematically evaluate alternative interface designs for presenting solutions to close gender pay gaps with decision making tasks, informed by prior work on decision making biases.

[1] E. Dimara, S. Franconeri, C. Plaisant, A. Bezerianos, and P. Dragicevic. A task-based taxonomy of cognitive biases for information visualization. *IEEE Transactions on Visualization and Computer Graphics*, 26(2):1413–1432, 2020. <https://hal-lara.archives-ouvertes.fr/LISN-ILDA/hal-01868738v2>

Compétences

The core areas of expertise relevant to this research topic are: 1) visualization/visual analytics; 2) human-computer interaction; 3) behavioral research (designing, running and analyzing human-subject experiments, in a way consistent with transparent research practices and open science). The applicant is required to have a strong prior background in at least one of those four areas, and a genuine interest in learning the remaining ones. A good level of English is necessary, but speaking French is not required.

In their motivation letter, the applicant must explain why they think they are a good fit, and demonstrate that they have considered the topic carefully and have some thoughts about it.

Avantages

- Subsidized meals
- Partial reimbursement of public transport costs
- Leave: 7 weeks of annual leave + 10 extra days off due to RTT (statutory reduction in working hours) + possibility of exceptional leave (sick children, moving home, etc.)
- Possibility of teleworking (after 6 months of employment) and flexible organization of working hours
- Professional equipment available (videoconferencing, loan of computer equipment, etc.)
- Social, cultural and sports events and activities
- Access to vocational training
- Social security coverage

Rémunération

Monthly salary : 2.653 euros/month

Informations générales

- **Thème/Domaine :** Interaction et visualisation
Production, traitement et analyse des données (BAP D)
- **Ville :** Gif Sur Yvette
- **Centre Inria :** [Centre Inria de Saclay](#)
- **Date de prise de fonction souhaitée :** 2022-09-01
- **Durée de contrat :** 2 ans
- **Date limite pour postuler :** 2022-08-31

Contacts

- **Équipe Inria :** [AVIZ](#)
- **Recruteur :**
Isenberg Petra / Petra.Isenberg@inria.fr

A propos d'Inria

Inria est l'institut national de recherche dédié aux sciences et technologies du numérique. Il emploie 2600 personnes. Ses 215 équipes-projets agiles, en général communes avec des partenaires académiques, impliquent plus de 3900 scientifiques pour relever les défis du numérique, souvent à l'interface d'autres disciplines. L'institut fait appel à de nombreux talents dans plus d'une quarantaine de

métiers différents. 900 personnels d'appui à la recherche et à l'innovation contribuent à faire émerger et grandir des projets scientifiques ou entrepreneuriaux qui impactent le monde. Inria travaille avec de nombreuses entreprises et a accompagné la création de plus de 200 start-up. L'institut s'efforce ainsi de répondre aux enjeux de la transformation numérique de la science, de la société et de l'économie.

L'essentiel pour réussir

Attention: Les candidatures doivent être déposées en ligne sur le site Inria. Le traitement des candidatures adressées par d'autres canaux n'est pas garanti.

Consignes pour postuler

Sécurité défense :

Ce poste est susceptible d'être affecté dans une zone à régime restrictif (ZRR), telle que définie dans le décret n°2011-1425 relatif à la protection du potentiel scientifique et technique de la nation (PPST). L'autorisation d'accès à une zone est délivrée par le chef d'établissement, après avis ministériel favorable, tel que défini dans l'arrêté du 03 juillet 2012, relatif à la PPST. Un avis ministériel défavorable pour un poste affecté dans une ZRR aurait pour conséquence l'annulation du recrutement.

Politique de recrutement :

Dans le cadre de sa politique diversité, tous les postes Inria sont accessibles aux personnes en situation de handicap.