

FICHE DE POSTE

Contrat doctoral (H/F) d'une durée de trois ans à temps complet

Les laboratoires *Image Ville Environnement* (LIVE, UMR7362) et *Sport et sciences sociales* (E3S, UR1342) proposent un contrat doctoral d'une durée de 3 ans, dans le cadre du programme JUSTICE « *Joining Urban morphology, Spatio-Temporal and socio-cognitive accessibility for an Inclusive City Environment* », financé par l'Agence Nationale de la Recherche dans le cadre d'un projet ENUAC (Era-Net Urban Accessibility and Connectivity) (voir description détaillée du programme en annexes ci-après).

CONTEXTE

Dans une perspective pluridisciplinaire, le programme JUSTICE vise à réexaminer les questions d'accessibilité intra-urbaine en jetant un pont entre deux domaines de recherche qui se sont pour la plupart ignorés. D'une part, les sciences sociales et spatiales (y compris la sociologie, l'anthropologie, l'aménagement du territoire et les études urbaines) qui ont largement débattu du fait que les mobilités concrètes (et donc l'accès à la ville) peuvent être limitées par les inégalités sociales, physiques et sociocognitives. D'autre part, les recherches quantitatives en géographie ont mesuré et élaboré des modèles d'accessibilité qui ont très largement ignoré les inégalités susmentionnées.

Le programme JUSTICE s'appuie sur l'idée que l'accessibilité n'est pas la même pour tous. Les exercices de modélisation seront ainsi affinés pour quatre publics spécifiques souffrant de contraintes de déplacement et d'aménagement urbain : les personnes en situation de handicap moteur ou visuel (non-voyants et/ou malvoyants), les personnes âgées et les personnes socialement défavorisées. L'implication de ces publics dans le projet permettra de comprendre comment les inégalités sociales et les situations de handicap affectent l'accessibilité dans une optique d'élaboration de politiques d'accessibilité inclusives.

MISSIONS

Le ou la doctorant·e recruté·e sera intégré·e à l'équipe pluridisciplinaire du programme JUSTICE.

Deux volets structureront le travail de recherche doctorale :

1. La modélisation quantitative de l'accessibilité intra-urbaine
2. La compréhension qualitative des pratiques et des points de vue socialement situés des personnes appartenant respectivement aux quatre groupes cibles identifiés

ACTIVITÉS PRINCIPALES

Les principales activités attendues sont les suivantes :

- Réaliser une revue de littérature des travaux relatifs à la recherche et assurer une veille bibliographique durant l'ensemble du programme
- Formaliser des hypothèses de recherche en cohérence avec le programme
- Concevoir les outils de recueil, de traitement et d'analyse des différentes données nécessaires à la recherche doctorale, en relation avec les chercheurs impliqués
- Recueillir et/ou participer au recueil des données identifiées et validées
- Analyser, interpréter et modéliser les résultats
- Valoriser les résultats de la recherche doctorale
- Aider à l'organisation de manifestations (journée d'étude, séminaire) en lien avec le programme JUSTICE
- Participer à la coordination administrative du programme JUSTICE : faciliter le lien entre les différents membres de l'équipe et avec les partenaires, participer à l'organisation des réunions de travail (préparation, rédaction des compte-rendu, etc.)

QUALIFICATIONS ET COMPÉTENCES REQUISES

- Être titulaire d'un diplôme de master en sciences humaines et sociales (spécialités aménagement, géographie ou sciences sociales)
- Une maîtrise de l'anglais équivalente à un niveau B2/C1 CECRL (TOEIC, etc.)
- De solides connaissances en statistique et méthodes quantitatives
- Des connaissances en SIG et/ou analyse spatiale
- Une éventuelle expérience en programmation, y compris web (php, html, ...) serait appréciée
- Une expérience dans l'usage de méthodes qualitatives
- Une connaissance attestée des problématiques d'inégalités sociales en contexte urbain sera un atout
- De façon plus générale, seront considérées les aptitudes suivantes :
 - le sens de l'organisation, l'ouverture d'esprit, l'esprit de synthèse et l'autonomie
 - les capacités à travailler en équipe, à s'exprimer en public et à rédiger

CONDITIONS D'EMPLOI ET DE RÉMUNÉRATION

Le ou la doctorant·e sera rattaché·e au laboratoire *Image Ville Environnement* (LIVE, UMR7362) et associé·e au laboratoire *Sport et sciences sociales* (E3S, UR1342) de l'Université de Strasbourg.

La durée du contrat doctoral est de 36 mois à plein temps et la prise de poste s'effectuera entre mai et octobre 2021.

La thèse sera codirigée par Christophe Enaux (PU, LIVE) et Sandrine Knobé (IGR-HDR, E3S) avec le co-encadrement d'Alexis Conesa (MCF, LIVE).

Le salaire est indexé sur les grilles de rémunération du CNRS et s'élève à environ 1 685 euros nets mensuels (complété éventuellement par une contribution au forfait transport).

DÉPÔT DES CANDIDATURES

Pour candidater, il faut **impérativement** répondre à l'offre et déposer votre dossier sur le portail emploi du CNR : <https://emploi.cnrs.fr/>

De plus, nous vous demandons de transmettre votre dossier de candidature par mail,

avant le 12 mars 2021

à Sandrine Knobé (knobe@unistra.fr) et Alexis Conesa (alexis.conesa@live-cnrs.unistra.fr) avec les éléments suivants :

- un CV détaillé
- une lettre de motivation
- les relevés de notes de master
- le mémoire de M2 réalisé ou travail équivalent

MODALITÉS DE RECRUTEMENT

Sélection et audition des candidatures sélectionnées (en présentiel ou en visio-conférence selon les conditions sanitaires).

ANNEXE : description globale du programme de recherche

JUSTICE

Joining Urban morphology, Spatio-Temporal and socio-cognitive accessibility for an Inclusive City Environment

ENUAC (Era-Net Urban Accessibility and Connectivity) European research project no. 875022 Project funding period: 2021-2023

Coordinator: Alexis Conesa – Live, University of Strasbourg

Project Consortium

- LIVE (Laboratoire Image Ville Environnement – Université de Strasbourg)
- CREAT (Centre de Recherches et d'Etudes pour l'Action Territoriale – Université de Louvain-la-Neuve)
- IGEAT (Institut de Gestion de l'Environnement et d'Aménagement du Territoire – Université Libre de Bruxelles)
- Konya Metropolitan Municipality
- E3S (unité de recherche Sport et Sciences Sociales) – Université de Strasbourg
- STIB-MIVB (Société des Transports Intercommunaux de Bruxelles)
- CAWaB (Collectif Accessibilité Wallonie Bruxelles)
- NEU (Necmettin Erbakan Üniversitesi)

Project Objectives and Targets

The “yellow jackets” crisis in France (social protests from suburban, lower middle-class against the increase in fuel price) is one of the latest evidences that environmental and social issues are intimately entangled. City planners recognize that current transport innovations are accompanied by a paradigm shift. In fact, social sustainability and eudaimonic goals challenge utilitarian approach and “the faster, the better” rationale (Schwanen 2019). Equity and the genuine participation of society then seem mandatory to meet the challenges of our time, including climate change (Kanitkar et al. 2016). Sustainability then relies on a combination of technical, spatial and social approaches, rejecting the technicist illusion (cf. the Daedalus myth). However, in comparison with economic and environmental goals, social objectives like justice and inclusion are seldom taken into account in transport planning decision-supporting. They don't appear in the Strategic Transport Research and Innovation Agenda (STRIA) roadmaps, whereas technical solutions are well fostered in EU research programs (e.g. ASTRID). Thus, in every city, various segments of the population, facing hurdles in their mobility, struggle to achieve a daily program of vital and rational activities. Several barriers can be identified with various impacts on inclusion: socio-economic gaps, digital divide, remote, isolated or discriminated neighborhoods, physical disabilities, as well with all the socio-cognitive barriers related to age, gender or other individual components. For instance, some public transport (PT) vehicles remain inaccessible for wheelchair users. Women may be afraid of travelling late at night. The poorest may also be excluded from the transport system by fares. All these barriers tend to accumulate. Worse yet, the recent events impacting the PT transport systems seem to widen inequalities. On the one hand, elderly people can feel left behind from MaaS (Mobility as a Service) systems because they struggle to handle digital devices. Besides, the global COVID-19 pandemic leads decisionners to various restrictions applied to PT (route changes, headway reducing, crowd dispersing measures, etc.), resulting in a general service degradation that makes mobility even more problematic

for the marginalized groups and exacerbates PT inequalities. In addition, those groups are especially prone to dread behaviors (IEA 2020, Haktanir et al. 2020). As ““life after COVID-19” will be “life with COVID-19”” (OECD 2020), there is a need for knowledge sharing and best practices monitoring to provide “fair” PT services, for all those having no alternative. Overall, besides quantitative gaps, inequality fosters the resentment of the double standards that can lead to a general mistrust in public transport policy, if not in democracy (cf. Rosanvallon 2015). The social groups suffering from this resentment are a relevant population to study in order to understand and analyze injustices in the PT system. Since the 1990s, the concept of justice has been mobilized to demonstrate the importance of addressing the issues of socio-economic inequality by moving away from John Rawls' (1972) initial universalist position. Harvey (1992), and later Young (1999), set out the two components of justice, namely domination and oppression, which are complemented with Di Meo (2004)'s contribution by the spatialization of injustices through the articulation of quantitative and qualitative analyses (Gervais-Lambony & Dufaux, 2009). Furthermore, accessibility has been stated as a crucial indicator to reveal spatial justice, because it is a combined capability (Sen 2005, Beyazit 2010) that “draws out the spatial dimension in moral concerns over equality of opportunities” (Pereira et al. 2016). Nevertheless, understanding accessibility effects and building inclusive policies are hindered by the very multifaceted and systemic nature of accessibility, that relies on morphology of the urban fabric, availability of transport modes, level of PT service, opening hours of the targeted activity venues, physical impairments, psychological/social/cognitive barriers, social environment, etc. Accessibility is then uneasy to define and measure, especially in different urban environments and for specific populations. Actually, most of the planning and transport policies are meant to be inclusive, but they inadvertently could exclude some individuals' practices and widen the accessibility gaps (Lucas 2012). It has for instance been stated that the difficulty of access to public transport is an aggravating factor of exclusion and that the age and socio-economic profile of users are a key indicator of this exclusion (Böcker et al., 2020). Like previously stated, these ““unintended consequences” are a matter to be considered by policy makers, if possible before transformation occurs rather than working in the aftermath” (Blair et al. 2013). Whereas accessibility assessments are well-developed, they barely take into account the marginalized. On the other hand, despite the increasing need for trans-disciplinary approaches, the applications remain mostly focused on a single domain (econometric, geographical or psychosocial) and they are uneasy to transpose from one case study to another. Several concerns can be pointed out.

First, to identify and prioritize inequalities, a quantitative analysis is required. The access to jobs, public services, health facilities, or selected points of interest are used to address equity and spatial justice issues regarding transport and urban planning policies (Martens 2012). But the schedule-based, spatiotemporally discontinuous nature of public transport requires relevant methods of measuring accurate accessibility (El-Geneidy et al. 2016). For instance, the generalized cost indicator is often tailored for one case study only (Cui & Levinson 2019). Moreover, to tackle inequality and play a role in the wake-up call for spatial justice, the aggregation of these results must lead to a comparable and understandable accessibility synthesis and mapping. Accessibility indicators are sometimes too sophisticated to be understood by policymakers and do not specifically consider specific users like older people, underprivileged, or visually impaired (uneasy to handle large scale discretized values, hard to understand/compare composite indexes, ...). Besides, despite the growing interest in people with disabilities (Imrie 2000), extensive thoughts on inclusive urban design have not led to specific accessibility modelling. This issue has to be addressed with specific accessibility indicators.

Second, quantitative accessibility measures are not sufficient to point out a sense of injustice or exclusion, because these concepts deal with moral concerns that vary according to specific population subgroups (van Wee and Geurs 2011, Lucas 2012). There is a need to complement recently developed PT accessibility approaches (e.g. MetropAccess project). The major contribution combining quantitative and qualitative accessibility (Blair et al. 2013) uses indicators that are inconsistent with the complexity of PT accessibility. A genuine integration of both approaches is still to build.

Last, it has been stated that the sense of exclusion from the mobility system is aggravated by marginalization from decision-making processes (Priya & Uteng 2009). To go further than the classical stakeholder consultation (e.g. Mobility 4EU project), a fully-fledged inclusive city strategy should involve marginalized people in public policy design and value their opinions in a knowledge sharing rationale. Urban stakeholders do not seem to have neither the knowledge nor the tools to manage these crucial and worsening issues. Accordingly, **the goal of the JUSTICE project is to assess spatial justice using a multifaceted notion of accessibility.** In order to share knowledge and facilitate best practices transfer, notably regarding COVID-19 crisis, **urban stakeholders need to be involved in the theoretical framework construction.** In addition, **the marginalized should be valued and involved in the decision-making processes.** To assess justice and inequalities, the **relevant spatiotemporal modelling methods should be used to measure PT accessibility,** yet they have to be complemented by **both quantitative and qualitative approaches able to point out physical, financial and socio-cognitive barriers.** **Shared indicators should be applied to several specific populations that face restricted mobility options due to the non-inclusive design of cities** (public spaces, PT systems and buildings) given their age, social condition and physical impairments. The main goal is **to build a methodological framework for recommendations** as well as **policy guidelines to help stakeholders** to better understand and address spatial justice issues, including through the (re)design of cities based on genuine inclusive accessibility.

In order to fulfill these targets, we propose to combine different disciplinary approaches by analyzing the accessibility of specific populations in various urban contexts. Consistent with the reconsideration of utilitarian-only approach introduced earlier, the project will draw on the capability theoretical framework, which includes personal factors as components of accessibility, along with transport service factors (Pereira et al. 2016). Innovatively, the conceptual background will be co-created with decision-makers and specific populations' representatives, drawing on various concepts previously used to incorporate equity or justice concerns into transport planning: utilitarianism, prioritarianism or sufficientarianism (Martens et al. 2014). The official universal accessibility norms will also be discussed with the relevant older and disabled persons, and not taken for granted.

The main innovative contribution would be to complement both morphological and spatiotemporal modelling approach, which implicitly supposes it works for everyone, by actual physical and socio-cognitive accessibility, the latter integrating psychological and sociological conditions of spatial practices (Ramadier and Enaux 2016). Actually, the relevant methods will be developed by skilled specialists in each domain. A typomorphological model of urban fabric (Remus¹) will provide connectivity indexes to accurately determine more or less accessible places. Then, a spatiotemporal calculator that includes amenity opening hours based on OTPA (OpenTripPlannerAnalyst) will provide

¹ The Remus model, and its extent Mogus, ensure the computation of a graph representing urban fabric (buildings and transport network), and the calculation of the network time distance between buildings. The model makes it possible to identify proximities and gaps in the urban structure through various graphs, in order to analyze the discontinuities in urban spatial dynamics induced by urban morphology and road structure.

spatiotemporal schedule accessibility that can tackle specific periods of inaccessibility. Yet, the actual accessibility of specific people (namely: the disabled, visually impaired, elderly and socially underprivileged) remains significantly overestimated, due to physical or socio-cognitive barriers. Thus, field practice will provide off-vehicle accessibility (e.g. access to vehicles and buildings, stop facilities) while socio-cognitive approaches (focus groups, guided walks) will provide subjective representations that will innovatively be reinjected in the objective measures. Accordingly, we will measure (1) connectivity for the generic population, (2) accessibility to PT (transport stops, vehicles, etc.) for both generic and specific populations, and (3) schedule accessibility by PT to a set of representative places for both generic and specific populations. These measures will be provided for each city considered as a case study (Strasbourg, Brussels, and Konya). The whole procedure will result in comparing accessibility levels and tracking significant accessibility gaps that impair justice and hinder inclusive cities. What kind of places are the least accessible? What specific population suffers the most from accessibility inequality? More importantly, with respect to both quantitative and qualitative results, what specific population is the more at risk of PT exclusion? The comparison between cities will not result in a classical ranking approach but rather in knowledge sharing and the possibilities of best practices transfer, drawing on already existing exchanges between the cities.

Importantly, a set of recommendations regarding urban morphology, the design of public transport facilities and rolling stocks, the general PT level of service, and public space management will be drawn out of these comparisons. A methodological framework for recommendations will be developed in order to help policy-makers to design cities and transport systems based on the concept of inclusive mobility (Imrie and Hall, 2001).

References

- Beyazit E. (2010), Evaluating Social Justice in Transport: Lessons to be Learned from the Capability Approach, *Transport Reviews*, 31 (1), 117–134
- Blair N., Hine J., Bukhari S.M.A. (2013), Analysing the impact of network change on transport disadvantage: a GIS-based case study of Belfast, *Journal of Transport Geography*, 31, 192-200
- Böcker L., Anderson E., Priya Uteng T., Throndsen T. (2020), Bike sharing use in conjunction to public transport: Exploring spatiotemporal, age and gender dimensions in Oslo, Norway, *Transportation Research part A: Policy and Practice*, 138, 389-401
- Conesa A., Leysens T. (2019), Cross-border Public Transport Accessibility as a Component for a Sustainable Mobility Indicator System. Modelling and Assessment of Basel Tramway Line no. 3, NECTAR Cluster 6 International Workshop, Munich, December 12-13 2019
- Cui M., Levinson D. (2019), Measuring full cost accessibility by auto, *Journal of Transport and Land-Use*, 12(1)
- Di Méo G. (Ed.) (2004), Composantes spatiales, formes et processus géographiques des identités, *Annales de Géographie*, n° 638-639, 224 p.
- Di Méo G. (2012), Eléments de réflexion pour une géographie sociale du genre: le cas des femmes dans la ville, *L'Information Géographique*, 76 (2), 72-94
- Delafontaine M., Neutens T., Schwanen T., Van de Weghe N. (2011), The impact of opening hours on the equity of individual space-time accessibility, *Computers, Environment and Urban Systems*
- Depeau S., Ramadier T. (2011), Se déplacer pour se situer. Places en jeu, enjeux de classes, Rennes : Presses Universitaires de Rennes (coll. "Géographie sociale")
- El-Geneidy A., Buliung R., Diab E., van Lierop D., Langlois M., Legrain A.. (2016), Non-stop equity: Assessing transit accessibility and social disparity over time, *Environment and Planning B: Planning and Design*, 43(3), 540-560
- Ellis K., Garland-Thomson R., Kent M., Robertson R. (Eds) (2019), *Interdisciplinary Disability Studies*, Abingdon & New York: Routledge

- Foth N., Manaugh K., El-Geneidy A. (2013), Towards equitable transit: Examining transit accessibility and social need in Toronto, Canada, 1996–2006, *Journal of Transport Geography*, Vol. 29, pp. 1-10
- Gasparini W., Vieille Marchiset G. (2008), *Le sport dans les quartiers. Pratiques sociales et politiques publiques*, Paris, PUF
- Gauvin L., Tizzoni M., Piaggese S., Young A., Adler N., Verhulst S., Ferres L., Cattuto C. (2020), Gender gaps in urban mobility, *Humanities & Social Sciences Communications*, 7:11
- Gervay-Lambony P., Dufaux F. (2009), «Justice... spatiale !», *Annales de Géographie*, 1-2, 665-666
- Haktanir A., Seki T., Dilmaç B. (2020), Adaptation and evaluation of Turkish version of the fear of COVID-19 Scale, *Death Studies*, 1-9
- Harvey D. (1992), Social justice, postmodernism and the city, *International Journal of Urban and Regional Research*, 16, 588- 601
- IEA (2020), *Changes in transport behaviour during the Covid-19 crisis*, IEA, Paris <https://www.iea.org/articles/changes-in-transport-behaviour-during-the-covid-19-crisis>
Project no. 875022
- Imrie R. (2000), *Disabling Environments and the Geography of Access Policies and Practices*, *Disability & Society*, 15(1), 5-24
- Imrie R., Hall P. (2001), *Inclusive Design. Designing and Developing Accessible Environments*, London, New York: Spon Press
- Jappinen S., Toivonen T., Salonen M. (2013), Modelling the potential effect of shared bicycles on public transport travel times in Greater Helsinki: An open data approach, *Applied Geography*, 43, 13-24
- Kanitkar T., Jayaram T., D'souza M., Sanwal M., Purkayastha P., Talwar R. (2016). Meeting equity in a finite carbon world, *Proceedings of Global Carbon Budgets and Burden Sharing in Mitigation Actions*, June 28-29, 2010, Tata Institute of Social Sciences
- MacEachren A. M., Gahegan M., Pike W., Brewer I., Cai G., Lengerich E., Hardisty F. (2004), Geovisualization for knowledge construction and decision support, *IEEE computer graphics and applications*, 24(1), 13-17.
- Martens, K. (2012). Justice in transport as justice in accessibility: Applying Walzer's 'Spheres of Justice' to the transport sector. *Transportation*, 39(6), 1035-1053
- Maurin L., 2017, Comment mesurer la pauvreté, *Observatoire des inégalités* <https://www.inegalites.fr/Comment-mesurer-la-pauvrete>.
- Moreno D., Badariotti D., Banos A. (2009), Integrating morphology in urban simulation through reticular automata modelling. Chap 7. In F. Bavaud and C. Mager (Eds), *Handbook of theoretical and quantitative geography*, Lausanne, 261-310,
- OECD (2020), *Cities Policy Responses. Tackling Coronavirus (Covid-19): Contributing to a global effort*, [oecd.org/coronavirus](https://www.oecd.org/coronavirus), May 13th 2020
- Pereira R., Schwanen T., Banister D. (2016), Distributive justice and equity in transportation, *Transport Reviews* doi: 10.1080/01441647.2016.1257660
- Priya T., Uteng A. (2009), Dynamics of transport and social exclusion: effects of expensive driver's license, *Transport Policy* 16 (3), 130–139
- Ramadier T., Enaux C. (2016), Socio-cognitive accessibility to places. In: P. Frankhauser and D. Anselm, *Deciding Where to Live: an Interdisciplinary Approach to Residential Choice in its Social Context*, Springer VS, 71-93
- Rawls J. (1972), *A Theory of Justice*, Oxford, Clarendon, 607 p.
- Rosanvallon P. (2015), *Le bon gouvernement*, Seuil, Paris, 416 p.
- Sen A. (2005), Human rights and capabilities, *Journal of Human Development*, 6(2),151-166
- Schwanen T. (2019), Urban mobility, wellbeing and inequality: Understanding the relationships. Keynote, NECTAR Conference "Towards Human Scale Cities - Open and Happy", Helsinki
- Turdaliev C., Edling C. (2018), Women's mobility and 'transport-related social exclusion' in Bishkek, *Mobilities*, 13:4, 535-550
- van Wee B., Geurs, K. T. (2011), Discussing equity and social exclusion in accessibility evaluations. *European Journal of Transport and Infrastructure Research*, 11(4), 350-367
- Young I.M. (1999), Residential segregation and differentiated citizenship, *Citizenship Studies*, 3(2)