Image Ville Environnement

Laboratoire | Équipe de recherche
Sport et **sciences sociales** | EA 1342
Université de Strasbourg

URBAN EUROPE

ANR — Agence Nationale de la Recherche

THESIS OFFER

PhD Student (H/F) full time 3 years contract offer

Research labs *Image Ville Environnement* (LIVE, UMR7362) and *Sport et sciences sociales* (E3S, UR1342) jointly offer a 3-years PhD student contract associated with the European ENUAC (Era-Net Urban Accessibility and Connectivity) JUSTICE research program (please find a more detailed description of the project in the appendix).

RESEARCH CONTEXT

The JUSTICE project aims at revisiting intra-urban accessibility issues through bridging two research fields that have mostly ignored each other. On the one hand, social and spatial sciences (including sociology, anthropology, land planning and urban studies) have extensively discussed the fact concrete mobilities (and thus access to the city) can be limited by social, physical, and socio-cognitive inequalities in a context where public spaces, public transport systems and buildings are not designed to be fully inclusive. On the other hand, quantitative research in geography has measured and modelled accessibility patterns that ignore the aforementioned inequalities, implicitly supposing that accessibility is inclusive.

In contrast, the JUSTICE project will rely on the very idea that accessibility is genuinely not the same for everyone. Modelling exercises will thus be refined for four specific audiences suffering from travel constraints and urban design: disabled, blind and visually impaired, elderly and socially underprivileged people. Importantly, how social inequalities and impairments affect accessibility will be captured from involving the concerned persons as well as stakeholders. All this will make it possible to set up inclusive accessibility policies.

TASKS

The PhD student will be integrated within the multidisciplinary JUSTICE team. His research will consist in fulfilling two main objectives:

1. Modelling intra-urban accessibility (quantitative approach)
2. Understanding practices and viewpoints from socially situated people belonging to the four specific audiences studied (qualitative approach)

The main tasks are the following:

- Carrying out literature review and literature monitoring during the whole project

- Formulating research hypotheses relevant with the project

- Building data gathering, processing and analysis tools with the team's researchers

- Collecting identified data

- Analyzing, interpreting and modelling results

- Enhancing results of the PhD research

- Participating in event organization (field missions, seminars, research meetings, workshops, …) regarding JUSTICE project

- Being part of the administrative coordination of JUSTICE project: easing the links between the partners, convening and setting up research meetings, reporting, etc.

REQUIRED SKILLS

- Master degree in Social Sciences & Humanities (Geography, Sociology or Urban Planning)

- English language fluency

- Solid basics in Statistics, GIS, Spatial Analysis and quantitative approaches

- An experience in computer programming, including php or html would be greatly appreciated

- An experience in qualitative approaches is required

- Previous knowledge about social inequalities issues in urban context would be an asset

- General skills:

    - organizational skills, open-mindedness, capacity for synthesis and autonomy
    - the ability to work in a team, to express oneself in public and to write

WORK CONTEXT AND REMUNERATION

The position is located in the *Image Ville Environnement* (LIVE, UMR7362) lab and associated with the *Sport et sciences sociales* (E3S, UR1342) lab within University of Strasbourg.

The full time, 36 months contract will start between May and October 2021.

The thesis will be supervised by Christophe Enaux (Full Professor, LIVE), Sandrine Knobé (Research Engineer, E3S), and Alexis Conesa (Associate Professor, LIVE).

The net wage amounts to 1 685 euros per month.

APPLICATION

It is **<u>compulsory</u>** to apply via the CNRS online job portal: <u>https://emploi.cnrs.fr/</u>

Moreover, please send your application by e-mail, **<u>before March 12</u>**
to Sandrine Knobé (<u>knobe@unistra.fr</u>) and Alexis Conesa (<u>alexis.conesa@live-cnrs.unistra.fr</u>)
along with the following:
- a detailed resume

- an application letter

- the master degree academic transcript

- the master thesis or similar work

Final selection of the candidates based on either remote or face-to-face interviews.

APPENDIX: Research programm description

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 Universitesi)

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 typo-morphological model of urban fabric (Remus[1]) 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

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[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).

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