

The EVCAU research lab's
ARCHITECTURE & INTELLIGENCE(S) CHAIR
invites you to

The 2nd international meeting ARCHITECTURE & INTELLIGENCE(S)

at École Nationale Supérieure d'Architecture de Paris-Val de Seine (ENSA PVS)
on November 18th, 2021

Call for papers

I. CONTEXT

Data is everywhere and algorithms are taking over. Analysis of territorial data, morphologies simulator, mobility infrastructure's digital twins, time focused urban organization, life cycle analyses, design processes, smart materials, augmented BIM, reuse and recycle platform, all of those through digital and data question us beyond purely technical aspects. From Internet of Things (IoT) to City Information Models (CIM), at all scales, data are now the fuel of artificial intelligence. Digital tools are the vector and support for a renewed pluri-dimensional spatial interpretations and representations. Beyond the traditional experimental and theoretical research methodologies, they are shaping alternative paths of investigation. What are the consequences for contemporary architectural creation ?

II. TOPICS

1. Augmented city

Quite distant from Marshall McLuhan's Global Village ontology, nonetheless the generalization of SMART CITIES, is a major issue for our future environment. With the development of autonomous cars, and the rise of question about the optimization of our energetical resources and the goal of a reduction of our environmental footprint, smart design of networks and flows represent a major scheme for our future environment.

The emergence of ubiquity in the public space question us about the space left for the citizen in the city. Is he happier, does he listen more to his peers ? What are his point of contact with his surroundings ? Those are the questions at work. Are we in a position to design the equivalent of Campo de 'Fiori in Roma, even this square would be connected or responsive ?

What are the emerging morphologies ? and for whom are they shaped ? How do we conceive digital twins of mobility and how do we analyse territorial data ? For which citizen and which governance ? Those are the challenges to come and the questions that are being asked to architects.

On the multiplicity of the types of flows and network, we can consider that connected electric bikes are one of the paradigms of smart cities. They are not alone and the typologies of mobilities are evolving, upgrading the status of public space.

At the city and town planning levels, the proliferation of autonomous vehicles will free up hectares of roads. Those vehicle fleets will be the actors of a fluid traffic thanks to car-sharing and to the regularization of the interaction between several users : pedestrians, cyclists, cars. According to this scenarii, the use of several hundred hectares freed up in a city like Paris needs to be rethought in terms of urban amenities. In this context, what status and what services can be linked to the public space ? How to compose the emergence and spatialization of the network in the city ? What density models, what physical and human geographies ? How the Quarter-Hour City (20-Minute Neighborhoods) deals with the last-mile logistics paradigm ? How to discover and accept to get lost in an hyperconnected city ? What about digital urban romanticism ?

2. Connected housing

Housing, as a privileged place for the use of connected objects, becomes an infinite source of data production. We can rethink comfort, experience and uses through the paradigm of *design by data*. Combined with intelligent algorithms, housing spaces flexibility get a renewed significance. They can now adapt and reconfigure themselves in response to uses.

What services can complement the housing experience ? How to design the construction of housing, more economical, more linked to its environment, but above all, more inclusive ? The shape of everyday interfaces, of all the devices making it possible to improve the experience of inhabiting, the response of architecture to users, in particular through the lens of safety, health and ageing at home remains to be designed. How should we organize data and accommodation ?

3. Sensors and data serving the architecture of the city and the citizen

At all scales, from IoT to smart cities, data and artificial intelligence form a cohesive whole. Sensors and the use of *in situ* data foreshadow classes of components that will be integrated into models and whose full potential of implementation has still to be designed. New functionalities, but also new civic, environmental and heritage ethics can be shaped in parallel to regulatory and legal mechanisms. Which spatial amenities are to be designed while preserving privacy of citizen ?

4. Smart materials

The deployment of technologies for the digital identification of materials, on-board sensors, digital printing of components with adjusted characteristics, make it possible to envision new architectures, adaptive to their environment, responsive to their users and, above all, more durable or reusable. Intelligent, geolocated, reusable materials collectively constitute a set of information to be used for the construction and maintenance of a building.

The design, prescription and development of this type of material remain to be imagined in their uses and methods of implementation. Digital manufacturing and connected materials are its major paradigms. Smart concretes which integrate sensors informing users about their level of use and internal stress, such as the question of the automation of procedures for re-use of materials and their certifications for new uses are a some of many examples of these applications that remain to be explored.

5. Governance, environmental ethics and data independence in the act of building

Data has become the El Dorado, the elite of market players and their collection a shared paradigm. However, we do have some tools to protect personal data. The CNIL¹ and the GDPR² are part of it. But what about the protection of project data ? Can the right to be forgotten on the web be supplemented by virtuous construction certificates ? Does a certification heuristic possible ? Can there be an environmental ethic supported by digital certification tools ? Can reuse be outlined and called for the continuity of the architect's social responsibility ? Can the DOE³ of the project be certified and enforceable against a third party ? Is the data encapsulated in BIM object classes necessarily proprietary ?

III. "SPATIALIZATION of INTELLIGENCES" EXHIBITION

The organization of a physical and digital exhibition will give each author space to present his research, within one of the following framework :

- a film of a few minutes,
- an A0 landscape poster,
- an installation or an immersive process.

¹ French committee : *Commission nationale de l'informatique et des libertés*

² General Data Protection Regulation

³ DOE : BIM files, French acronym for *Documents des Ouvrages Exécutés*

IV. PROPOSAL FOR PAPERS

Communication proposals are expected, in the form of a text of 3,000 characters which specifies the issue addressed, by choosing one or two of the five topics presented. The communications will briefly explain the relevance of the subject, the methodology used and the results obtained or expected. They cannot be limited to the bibliography. Communication proposals must be accompanied by a short biography of the authors, possibly indicating the research in progress he is or she is currently working on. When submitting, please specify the category of proposals : Communication / Film / Poster / Installation.

V. CALENDAR

- **April 26, 2021:** Launch of the call for papers.
- **June 30, 2021:** Deadline for submitting proposals for papers, workshops and posters.
- **From July 15, 2021:** Announcement of selected communications, workshops and posters.
- **September 30, 2021:** Submission of articles of 30,000 characters (spaces included) for pre-acts.
- **November 9, 2021:** Conferences, communications, posters and workshops.
- **End of November 2021:** Selection of articles for publication / request for corrections from authors.
- **End of December 2021:** Submission of final bilingual articles for publication in 2022.

Publication of proceedings: for the widest possible distribution, a bilingual version of the contributions is desired.

Proceedings: For the most effective diffusion of proposals, an English language issue will be published in the *International Journal of Design Sciences & Technology*.

Deadline for receipt of proposals: June 30th, 2021.

They should be sent to the following address : 2jai@paris-valdeseine.archi.fr

This same address can be use as contact email.

VI. SCIENTIFIC COMMITTEE

The proposals will be assessed by the scientific committee and the professors of the steering committee.

AÏT HADDOU Hassan Associate Professor ENSA Montpellier LIFAM
CORDERO-FUERTE Juan-Antonio Associate Professor École Polytechnique – Dpt. of Computer Science
GUENA François Full Professor ENSA Paris la Villette MAP-MAACC
HAMMOUDI Tewfik Associate Professor ENSA Nantes EVCAU
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MARIN Philippe, Associate Professor HDR, ENSA Grenoble, MHA
YANATCHKOV Milovann Associate Professor ENSA Nancy Doctorant MAP-MAACC
ZARCONI Roberta Associate Professor ENSA Paris Malaquais GSA
ZREIK Khaldoun Full Professor in information and communication science Univ. Paris 8

VII. STEERING COMMITTEE

TERRACOL Pascal Full Professor ENSA Paris Val de Seine EVCAU
SERERO David Associate Professor ENSA Paris Val de Seine EVCAU
MAJ Elena PhD candidate at ENSA Paris Val de Seine EVCAU and AUID.