

FICHE NAVETTE: DOCTORANTS IDEX

SECTOR : Higher Education Institution

LOCATION: France, Grenoble

RESEARCH FIELD: **RISK MODELLING, ASSESSMENT AND MANAGEMENT**

RESEARCHER PROFILE:

- *First stage researcher (Master Degree level required)*

INSTITUTION: Univ. Grenoble Alpes, University of Innovation

One of the major research-intensive French universities, Univ. Grenoble Alpes¹ enjoys an international reputation in many scientific fields, as confirmed by international rankings. It benefits from the implementation of major European instruments (ESRF, ILL, EMBL, IRAM, EMFL²). The vibrant ecosystem, grounded on a close interaction between research, education and companies, has earned Grenoble to be ranked as the 5th most innovative city in the world. Surrounded by mountains, the campus benefits from a natural environment and a high quality of life and work environment. With 7000 foreign students and the annual visit of more than 8000 researchers from all over the world, Univ. Grenoble Alpes is an internationally engaged university.

A personalized Welcome Center for international students, PhDs and researchers facilitates your arrival and installation.

In 2016, Univ. Grenoble Alpes was labeled "Initiative of Excellence". This label aims at the emergence of around ten French world class research universities. By joining Univ. Grenoble Alpes, you have the opportunity to conduct world-class research, and to contribute to the social and economic challenges of the 21st century ("sustainable planet and society", "health, well-being and technology", "understanding and supporting innovation: culture, technology, organizations", "Digital technology").

Key figures:

- + 50,000 students including 7,000 international students
- 3,700 PhD students, 45% international
- 5,500 faculty members
- 180 different nationalities
- 1st city in France where it feels good to study and 5th city where it feels good to work
- ISSO: International Students & Scholars Office affiliated to EURAXESS

¹ Univ. Grenoble Alpes

² ESRF (European Synchrotron Radiation Facility), ILL (Institut Laue-Langevin), IRAM (International Institute for Radio Astronomy), EMBL (European Molecular Biology Laboratory), EMFL (European Magnetic Field Laboratory)

MANDATORY REFERENCES:

CDP TITLE: **RISK@Univ. Grenoble Alpes**

SUBJECT TITLE: Coordination of action between heterogeneous stakeholders in management of crisis

PRIMARY SCIENTIFIC DEPARTMENT (LABORATORY'S NAME): PACTE (Politique Action Publique Territoires et organisation)

SECONDARY SCIENTIFIC DEPARTMENT (LABORATORY'S NAME): LIG (Laboratoire d'Informatique de Grenoble)

PARTENARIAT: IRSTEA (Institut national de recherche en sciences et technologies pour l'environnement et l'agriculture)

PRIMARY DOCTORAL SCHOOL (where the candidate will be registered): ED SHPT

SECONDARY DOCTORAL SCHOOL: ED MSTII

SUPERVISOR NAME(S): *Sandrine CAROLY, Yann LAURILLAU, Didier RICHARD*

SUBJECT DESCRIPTION:

Contexts and objectives:

The stakes of risk management in governance and coordination perspectives are multiple:

- social: the cost of accident is important for human and society,
- professional: the needs to adapt the tools and regulation on human factor,
- scientific: the application of knowledge oriented by design centered on human and collective activity (Caroly, 2011). To take the heterogeneity of stakeholders into account (representations, actions in crisis management). System design with heterogeneous data and modeling with imperfect information (multicriteria approaches). Innovation of tools with common data as well as specific data in order to facilitate the coordination between heterogeneous profiles of users.

The aim of this thesis in ergonomics topics is to understand the links between different stakeholders (citizen, political, experts, etc.) involved in collective activities to manage the risk: the type of communication, the nature of the information mobilized and shared, the individual and collective strategies. The objective is to improve technological support to facilitate the coordination (Darses, 2002). The challenge is to identify design recommendations (e.g. design space, guidelines) to design instruments relevant to individual practice depending on the needs, skills and perception, but also to cooperation (Crouzat, Bobiller-Chaumon, 2017) between different stakeholders. The objective is to create utilisabilities for using mobile phone, which it products elementary and open data to prevent risk situations, freely used and redistributed by anyone. The aggregated data, when used and re-used, gives the opportunity to connect source data with various and diversified aspects (Richard, 2011) (e.g. data on alert provided by ongoing activities or environmental elements, or related to decision making, safety behavior, reflective experience).

The case study will be focused on avalanche risk management in Alpine area (e.g. Mont Blanc) because a lot of knowledge about various risk management situations is available, involving different types of actors, and mobilizing different reference frameworks (regulatory, professional,...). This will allow to analyse also the level of variability of situations, and of the corresponding heterogeneity of the identified actors. We have already at IRSTEA some knowledge of the physical characterization of avalanche risk situations and a fairly good visibility on some regulatory frameworks. The study of coordination between different actors depends on the context and the resources of collective work, for which PACTE develops an understanding of resilience and network building. To technologically support risk management, it implies designing one or multiple user interfaces (UIs) that take into account the heterogeneity of user's profiles, that make data observable, and that facilitate coordination among stakeholders. The LIG will bring knowledge to characterize the design of such user interfaces through the identification of specific

design spaces and/or design guidelines, and through the use of conceptual tools such as collaborative task models (Jourde, Laurillau, Nigay, 2011).

Methods:

The methodology is founded about 4 fields: 1/ Define the criteria of risk and management analyses by the knowledge available from accident back analysis, identification of actual uses of such data and tools, and of needs for developing new tools 2/ Interviews of different actors involving in decision making for risk management in concrete situation (citizen, professional, researchers, etc.) and define typology of different users, 3/ Construction of scenarios of critical incident 4/ Experimentation of these scenarios to anticipate the needs for cooperation to manage the risk and the decision making , 4/ Define the recommendations to design of future user interface (UI) to improve collaboration (knowledge of needs of each user to find the criteria of development of technical solution).

Delivrables:

The expected results are

- An improvement of resilience by a better coordination between different actors: data constructed to assess this coordination.
- The investigated methodologies to design in the future a collaborative instrument.
- Design recommendations for external specifications of multi-user UIs and their evaluation.
- Prospects for more operational projects (higher TRLs) that could be supported by communities (e.g. Auvergne Rhône-Alpes Region) or industrial partners (Petzl, MAIF foundation) to develop the specific instrument.
- Publications in Safety sciences, Applied ergonomics.
- Communications in the computer-supported cooperative work (CSCW) community.

ELIGIBILITY CRITERIA

Applicants:

- must hold a Master's degree (or be about to earn one) or have a university degree equivalent to a European Master's (5-year duration),

The candidate should ideally have a Master's degree in ergonomics, occupational psychology, cognitive psychology, or a diploma of safety and security engineer, of industrial design engineer.

REQUIRED SKILLS

- Theoretical skills: Knowledge in ergonomics, risk psychology, human-machine interaction, environmental risks, will be much appreciated.

- Methodological skills: Mastering the methods of social science research and ergonomics design: interviews, observations, simulations and experimentations. But also mastering methods on statistical data analysis of accident, qualitative and quantitative data analysis, and on the tools in mock-up, numeric model with scenario of usage and collective practices.

- Language: A good level in French and English is an asset

APPLICATION PROCEDURE

Applicants will attach a file including:

- Their CV
- A cover letter / letter of motivation
- A summary of previous work done/publications in Master 1 and Master 2
- A record of the grades of Master 1 and Master 2

- A copy of their last diploma

Address to send their application: Sandrine Caroly, Sandrine.caroly@univ-grenoble-alpes.fr
Yann Laurillau, Yann.Laurillau@univ-grenoble-alpes.fr

SELECTION PROCESS

Application deadline: **May 31, 2018** at 17:00 (CET)

Applications will be evaluated through a three-step process:

1. Eligibility check of applications on **June 7, 2018**
2. Selection: the applications will be evaluated by a Review Board in June 2018
3. Results will be given by **July 12, 2018**.

TYPE of CONTRACT: temporary-3 years of doctoral contract

JOB STATUS: Full time

HOURS PER WEEK: 35

CONTRACT STARTING DATE: **October 1, 2018**

APPLICATION DEADLINE: **May 31, 2018**

Salary: 1768.55 € gross per month