SECTOR: Higher Education Institution

LOCATION: France, Grenoble

RESEARCHER PROFILE:
- First stage researcher,

INSTITUTION: Univ. Grenoble Alpes, University of Innovation

One of the major research-intensive French universities, Univ. Grenoble Alpes\(^1\) 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, EMFL*). The dynamic 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 Alps 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").

* 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)

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

\(^1\) https://edu.univ-grenoble-alpes.fr/en/
MANDATORY REFERENCES:

PROJECT TITLE: MIAI @ Grenoble Alpes “Contextual Recommendations in Action - Bridging the Gap between Economics and AI” chair

SUBJECT TITLE: Economics and AI: An integrated environment to mine and verify hypotheses on customer preferences in Retail

RESEARCH FIELD: data mining, online deployment, online advertising, cognitive biases, behavioral economics, data analysis, recommendations

SCIENTIFIC DEPARTMENT (LABORATORY’S NAME): Laboratoire d’Informatique de Grenoble, GAEL-Grenoble Applied Economic Laboratory

DOCTORAL SCHOOL: Mathématiques, Sciences et technologies de l’information, Informatique (MSTII)

SUPERVISOR’S NAME: Sihem Amer-Yahia, Oana Goga, Bary Pradelski, Laurent Muller, Adélaïde Fadhuile

SUBJECT DESCRIPTION: AI, and in particular Data Mining and Recommendation, offers the ability to observe the behavior of millions of customers and predict their future choices. While consumer choices in classical theory are based solely on preferences and on price, Behavioral Economics and in particular the study of Learning in Economics, have established that consumer behavior is largely dictated by contexts and evolves over time. Decisions are guided by heuristics influenced by psychological, emotional, cultural and social factors. The purpose of this proposal is to develop an integrated environment for mining and verifying theories about customer preferences in the Retail industry.

Our goal is to study how data mining expertise can empower choice theorists by providing powerful AI tools for mining and predicting customer behavior, as well as helping them test their hypotheses over time. In particular, Evolutionary Economics studying how agents learn over time has yet to bridge the gap between theory and empirical testing. Data Scientists can help Economists validate their findings by providing easy-to-use mining algorithms and interfaces to test established theories and stylized facts on large historical datasets. Economists can help Data Scientists isolate the impact of preferences and context on choice through controlled lab experiments.

The goal of this work is to test nudge theory and behavioral learning (reinforcement learning, anchoring, trial-and-error, mood-based) on real large-scale datasets. The candidate will first do a review of choice theory and identify a set of theories to be tested. The candidate will use mining algorithms to test and refine those theories in a data-driven manner. The resulting theories will be used to design appropriate contextual recommendation algorithms. Throughout this effort, we will work with the case of TOTAL customers but we will provide solutions that can readily apply to other similar domains.

The student will be able to take advantage of a unique setting for performing this study where she/he can work with both theory and system computer scientists, as well as theoretical and experimental economists. The student will have access to a large historical dataset about products and promotions from TOTAL and will be able to take advantage of the AdAnalyst platform we developed in our team to perform controlled real-life experiments in Facebook.

Candidates should have a strong background in mathematics and some background in machine learning; programming capabilities to perform data-driven empirical studies; interest in the societal impact of recommendations (no prior experience working in this area is required).

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),
Applicants will have to send an application letter in English and attach:
- Their last diploma
- Their CV
- A short presentation of their scientific project (2 to 3 pages max)
- Letters of recommendation are welcome.

Address to send their application: firstname.lastname@univ-grenoble-alpes.fr