Internship: AI, network economics and social listening: how information on the agroecological transition flows between farmers and consumers

Context

The agroecological transition is not driven by prices and regulation alone. It also depends on how information travels between peers, on the social norms that take hold within farming communities, and on how consumers perceive and value production practices. These mechanisms are, by construction, poorly captured by standard economic data: what a farmer or a consumer is actually exposed to is almost never observed.

The project addresses this gap with an original data: a worldwide social listening corpus covering X/Twitter, Instagram, YouTube and Reddit. Because several platforms and therefore several recommendation algorithms are observed jointly, a substantial share of the information effectively delivered to farmers and consumers becomes measurable.

Three literatures meet here. First, the microeconometrics of policy evaluation (Abadie & Cattaneo, 2018; Todd & Wolpin, 2023), which supplies the identification discipline needed to move from correlation to effect when no observable counterfactual exists. Second, the economics of networks and social learning, which shows that adoption of agricultural practices depends heavily on peer structure and on who occupies central or bridging positions. A body of work that shares most of its methodological challenges with spatial econometrics. Third, the machine learning toolkit for economists summarized by Athey & Imbens (2019): trees and forests, unsupervised learning, matrix completion, and the hybrid procedures, i.e. causal forests, machine learning, optimal policy learning, that combine predictive power with valid inference.

What remains largely unexplored is the joint treatment of these three strands on large-scale, multi-platform social media data in an agricultural and food context. Existing work on digital traces is mostly descriptive, single-platform, and rarely validates the automated labels it relies on. That is precisely the gap this internship starts to close.

Mission

Within six months, the intern will deliver:

1. A documented, reproducible corpus. Cleaning, duplication and structuring of the multi-platform data, with temporal, linguistic and geographic coverage characterised and all processing choices documented.
2. An AI-based annotation layer, and its validation. Language models (transformers, LLMs used as annotators) will classify content by theme, sentiment and framing. Crucially, the intern will build a hand-coded validation sample, report agreement statistics, and quantify the measurement bias an imperfect classifier introduces into downstream estimates.
3. A first mapping of the interaction networks. Reconstruction of mention, repost and reply graphs; centrality and community detection; identification of the bridge accounts that connect farming and consumer communities: the accounts through which information can actually cross from one world to the other.
4. A first descriptive analysis of information diffusion, using prediction methods (forests, LASSO, matrix completion) to characterize who relays what, how fast, and towards which audiences.

The mission of the internship will be supervised by 2 researchers combining an interdisciplinary approach in both applied econometrics and AI and computational social science: Adélaïde Fadhuile (GAEL, UGA, Grenoble), Julie Le Gallo (Institut Agro, CESAER Lab, Dijon) and Frederic Boy (Assoc. Professor in AI and Computational Social Science, Swansea University).

Impact. Scientifically, these outputs form the empirical foundation of a longer research programme and are intended to support a working paper.

Academic profil

Student in applied econometrics, data science or engineering school with minimum knowledge in economics/econometrics are welcomed.

Master's level (Year 2).

Excellent skills in computer science and data analysis, including causal inference methods.

Advanced programming and use of R and/or Python. High level of rigor. Excellent skills in English.

Internship duration: 6 months.

Start date: January 2027.

Interviews: conducted on a rolling basis, as soon as possible.

Location: GAEL Laboratory, FEG, 1241 rue des Résidences, 38400 Saint-Martin-d'Hères.

The application file must include: a CV, a cover letter, and master's transcripts; any previous thesis or research work is welcome. Selected candidates will be invited for an interview.

Please send one pdf per application to A. Fadhuile (adelaide.fadhuile@univ-grenoble-alpes.fr) with mail object [Yourname_internship_SUSNET].

Univ Grenoble Alpes

Located in the heart of the Alps, our university brings together research, education, and innovation to address the major challenges facing our society. From the mountains to large-scale research facilities, from lecture halls to laboratories, from our local regions to the wider world, we bring together men and women who explore, learn, experiment, and invent the solutions of tomorrow. A university where differences become a collective strength and where, for nearly seven centuries, one conviction has united us: science sets us free.

MIAI Cluster IA is one of three French institutes of international standing. MIAI Cluster IA has produced more than 1,600 publications on the topic of AI since 2019. MIAI Cluster IA has more than 200 permanent academic members and provide multidisciplinary ecosystem to consider the transition. The institute is bringing together partners from the public and private sectors and aiming to develop AI for human beings and the environment. The MIAI Cluster IA aims to conduct research in AI at the highest level, to offer attractive courses for students and professionals of all levels, to support innovation in large companies, SMEs and start-ups and to inform and interact with citizens on all aspects of AI.

https://miai-cluster.univ-grenoble-alpes.fr/miai-institute/

GAEL Lab

GAEL's research focuses on sustainable innovation and consumption, particularly in the energy and agro-industrial sectors. The laboratory's key methodologies are micro-economic modeling (industrial economics, behavioral economics), experimental economics, econometrics, modeling applied to certain sectors such as energy, and qualitative analysis based on case studies.

Research is organized along three lines:

- Consumption: using experimental analysis in particular, the aim is to analyze the determinants of consumption behavior and the ability of different public policies to modify this behavior.
- Energy: the aim here is to understand and model economic equilibria in energy sectors and markets, understand international institutional developments and assess the impact of energy and climate policies in order to meet the challenges of sustainable development.
- Innovation: research aims to understand and model the strategies of players in different innovative industries, and to analyze and assess the impact of different innovation policies at regional, national and European levels.

The GAEL unit was created in 2003 on the basis of a merger between an INRA research laboratory and a university experimental economics team. In 2016, the EDDEN research team (CNRS-University) joined the laboratory, leading to the expansion of its research into energy economics. Grenoble INP, which has long been associated with these research teams, became the laboratory's supervisory body in 2016, alongside CNRS, INRA and UGA. GAEL has a staff of 70, including 40 researchers, teacher-researchers and engineers, 10 research support staff and 30 PhD students and contract researchers.

GAEL's research is funded mainly by the Auvergne Rhône-Alpes region, the French National Research Agency and the European Union. Much of this research is multi-disciplinary, involving researchers in the engineering sciences (electrical systems, materials, etc.), nutritionists, agronomists, geneticists and ecologists.