INITIATIVE
FOR
MEDIA
INNOVATION

ANNUAL REPORT

2021

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INNOVATION

C/O EPFL AVP CP MEDIA
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This report outlines the progress made by IMI in 2021. We remain very active in terms of collaborative projects, with 7 key projects underway, 5 of which have made it through the mid-term evaluation stage. As always, these projects aim to bring academia and the media sector closer together by leveraging open innovation and interdisciplinarity to foster the search for solutions. We also strive to develop our outreach and communication activities, mainly through events and the dissemination of project results. Finally, this year has been an opportunity to review our activities together with our founding members, in order to lay the necessary groundwork for the next phase of IMI, which should start in 2023 and thus coincide with the completion of the new RTS production center on the Lausanne campus in 2025.

Key achievements in figures

Note: a complete list of 2021 publications and events can be found in the "Outreach and communication activities" section at the end of this report.

994k CHF
invested in projects
in 2021

140+ people
involved in projects

17 projects
to date
(10 completed)

9 tools and platforms
to explore

10 scientific papers
published in international journals or conferences

23 research reports
issued

10 news items
in the media
in 2021

50 participants
in 1 public event
in 2021

Documents and links to software are available on our Resource Hub

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Latest news and outlook

Extending the IMI partnership

Discussions during the second half of 2021 have led our founding members to express a willingness to renew their commitment to IMI for an additional 5 years, from 2023 to 2027. The extension of the IMI Consortium Agreement will be negotiated over the next year with all of our members. This pledge is also a great opportunity to attract new members, thereby strengthening our position and ambitions.

Creating a media hub at the heart of the Lausanne campus

The construction of the new RTS radio, TV and digital production center on the EPFL and UNIL campus, which is expected to be completed in 2025, acts as a catalyst for our members. Broader reflections have been initiated—through IMI—between RTS, EPFL and the Triangle Azur on future collaborations. Overall, the rapprochement with RTS is generating a lot of expectations and excitement from the academic community.

Figure 1: RTS production center set to open in 2025 in the heart of the Lausanne campus (source: RTS).

Intensifying our outreach and communication activities

The tense situation related to COVID-19 made organizing events and meetings more difficult in 2021. Nevertheless, we managed to organize a collaborative workshop on data literacy at the end of the year in downtown Lausanne aimed at the general public. We expect 2022 to be more favorable for this type of activities. Our next annual event is scheduled for February 2022 at EPFL. In addition, we are planning other events throughout next year with the aim of raising awareness and discussing topics that are important to us, as well as showcasing and promoting the results of our work.

Putting information at the top of the Swiss research agenda

Having limited resources, we are constantly looking for opportunities to connect with other media initiatives and to initiate collaborations outside our immediate network. For the same reason, and given the vital role of information in our democratic system, we have drafted a thematic proposal for a National Research Program (NRP) entitled "Information, Innovation and Society", which we plan to submit to the State Secretariat for Education, Research and Innovation (SERI) in March 2022 as part of their next selection round.

This NRP proposal aims, through research and innovation projects, to better understand and provide concrete solutions to the many societal, economic or technological challenges related to the information of tomorrow, considered as a common good and a pillar of our democracy.

Focus on a selection of key ongoing projects

CompaSciences 2.0

A. Chevalier (Universities of Western Switzerland - RTS), B. Beaude, P. Gonzalez (UNIL), U. Fischer (Memoways) et al., in partnership with RTS and Le Temps
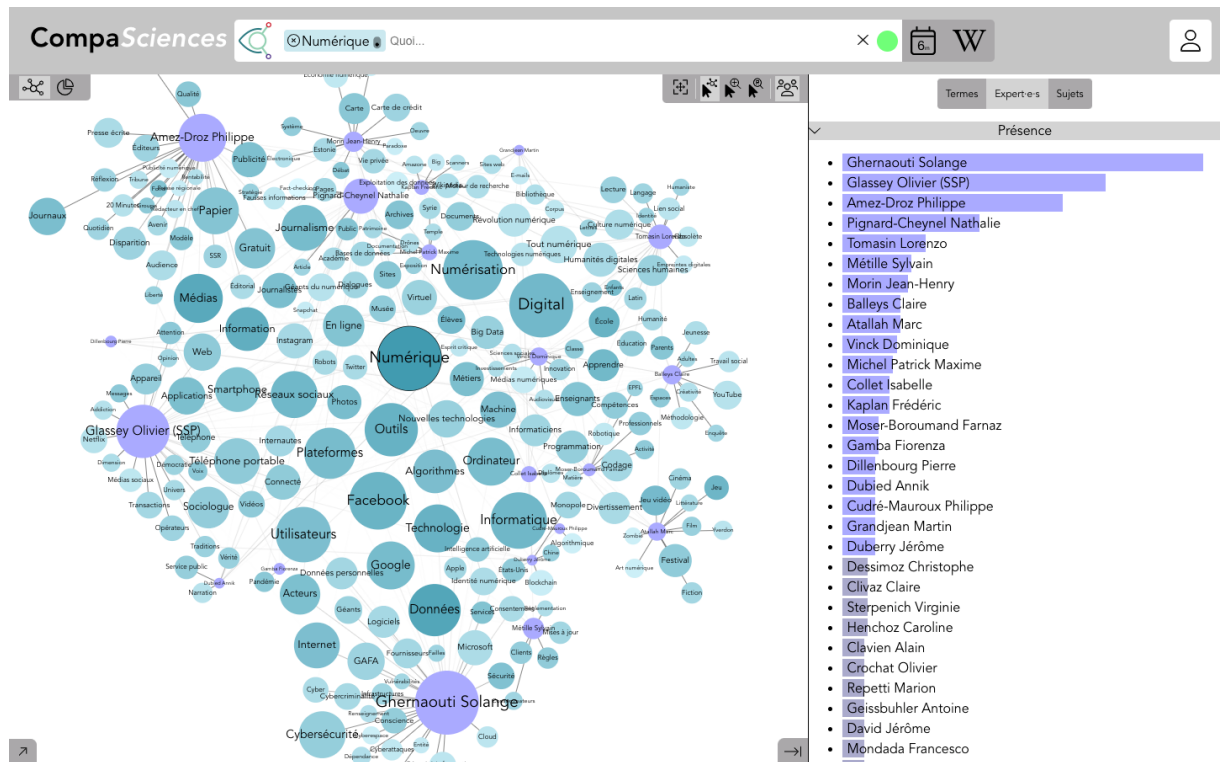

Figure 2: Web interface of the CompaSciences platform showing the experts in French-speaking Switzerland who are active in digital-related fields (source: UNIL STSLab).

CompaSciences is an innovative web platform[1] for the semantic, computational and qualitative analysis of media content, developed to help journalists navigate the constant flow of information they face on a daily basis and identify relevant scientific experts for their stories. CompaSciences 2.0 is the continuation of the "Scientific Expertise and Media Discourse" project. It aims to consolidate the in-depth computational and qualitative analysis of the software, to identify experts from Swiss universities who are not involved in the media by using the SNSF P3[2] database in particular, and to better integrate into the daily lives of journalists. They will thus have access to an intuitive tool for putting current events into perspective, enabling them to create new stories in a quick and relevant way by relying on the expertise of scientists throughout Switzerland.

This project is expected to be completed in August 2023.

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[1] http://www.compasciences.ch/ (login required)

[2] https://p3.snf.ch/

Videos and project results are available on our website

Automatic Labeling of Visual Data Based on Human Actions, Objects and Their Relationships

A. Alahi (EPFL) et al., in partnership with RTS

Sven Kreiss, Lorenzo Bertoni, and Alexandre Alahi. "Pifpaf: Composite fields for human pose estimation." IEEE/CVF conference on computer vision and pattern recognition, (CVPR 2019).

Figure 3: Web interface of the Movements platform showing human pose detection on an image (source: EPFL VITA).

Today, we live in a world where breaking news are almost instantly captured by the crowd and shared on social networks such as Twitter, Instagram or TikTok. Yet, media companies are currently unable to effectively extract meaningful information from the deluge of visual data uploaded online every second. The VITA laboratory is developing such technologies that were used, for example, in 2019 to estimate the size of the crowd during the 14 June women's strike in Geneva, using images and videos captured by demonstrators. The resulting article[3], published by Heidi.news, even questioned the official estimates.

In this project, the VITA laboratory, in partnership with RTS, aims to develop computationally efficient methods that will go beyond crowd counting, and extract a large set of semantics ranging from a list of objects to human actions and their relationships. The proposed technology will allow complex metadata to be au-

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[3] https://www.heidi.news/sciences/nous-avons-confie-le-comptage-de-la-greve-des-femmes-a-geneve-a-pifpaf-un-algorithme-de-l-epfl

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tomatically extracted from any image or video. By working in real time on live or crowdsourced content, this information will enable journalists to enhance the quality of their coverage, and to produce new and innovative formats. Content recommendation or content retrieval systems will also greatly benefit from the enriched metadata.

Now, the VITA laboratory has set up a web platform called Movements[4] that allows scientists and engineers to test all newly developed detection methods on images, videos and even in real time using a webcam.

This project is expected to be completed in January 2023.

Videos and project results are available on our website

PASSAGE: Subtitling of Swiss German into Standard German

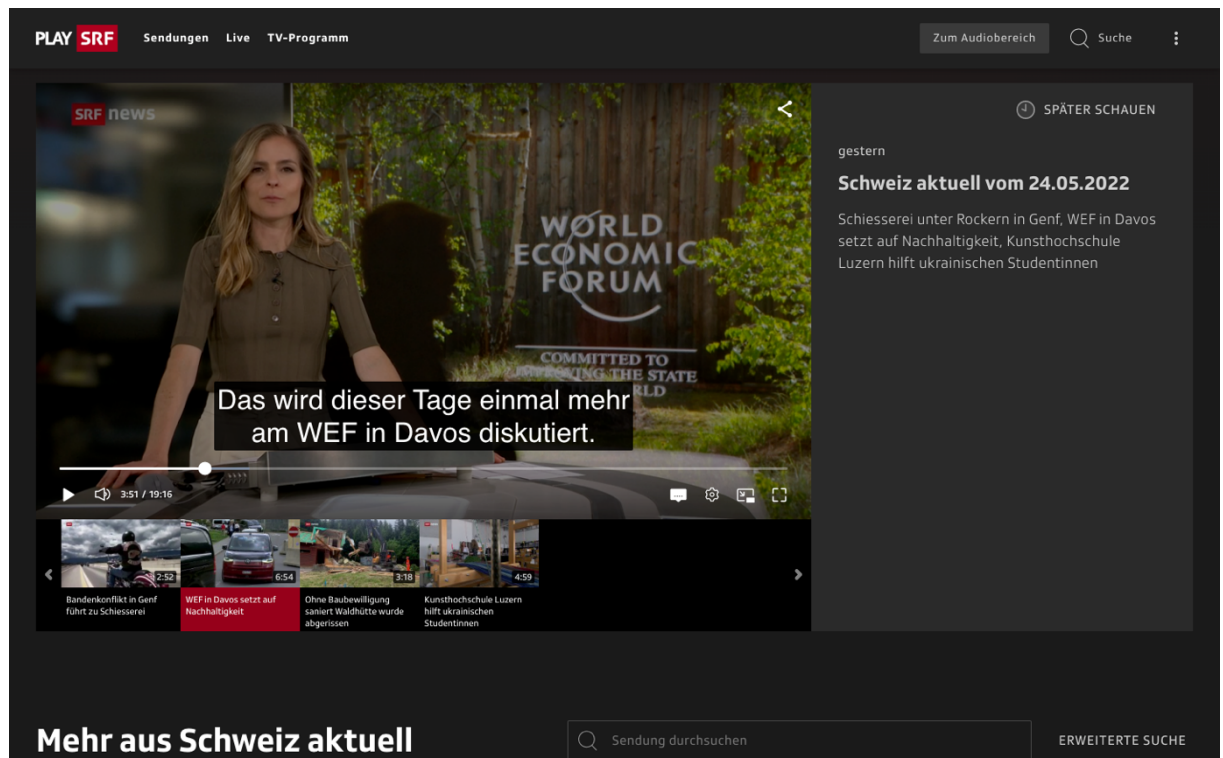*P. Bouillon (UNIGE) et al., in partnership with SRF and recapp IT*

Figure 4: Interface of the streaming platform Play SRF showing the subtitling of a program in standard German (source: SRF).

This project aims to develop, in collaboration with SRF and recapp IT, an automatic post-editing system to improve the quality of automatic German subtitling of Swiss German television programs. It has three main

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[4] https://vitademo.epfl.ch/movements/

objectives. The first one is to compare different methods of automatic post-editing for this task, the second one is to collect the opinions of users on this type of transcription in order to generate subtitles that are as accessible as possible, and the third one is to share written and oral resources to promote research on Swiss German in the field of media.

Automatic post-editing will be done using modern Machine Translation (MT) techniques. On the scientific level, this project contributes to research on poorly endowed languages, on automatic post-editing, especially with new neural methods, and on the understandability of this type of transcription. In addition, it has a strong societal impact, as it aims to make television more accessible by subtitling programs in Swiss German and making them available in standard German for people who do not speak Swiss German or who suffer from a hearing impairment. This project therefore complies directly with the new legal requirements for accessibility in Europe and falls squarely within the multilingual context of Switzerland, offering solutions to promote linguistic diversity, multilingual cohesion and cultural exchange, which is also the primary mission of the media.

Now, the Department of Translation Technology (TIM) of the University of Geneva has set up a demo page[5] to test the automatic post-editing API that will later become available to media partners.

This project is expected to be completed in December 2022.

Videos and project results are available on our website

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[5] http://regulus.unige.ch:86

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Other key ongoing projects

Personalized Recommendation: from Polarization to Discovery

J.-G. Piguet, J.-P. Calbimonte (HES-SO Valais-Wallis) et al., in partnership with SRG SSR/RTS


This project aims to design a personalized content recommendation system for Play Suisse—the new streaming platform developed by SRG SSR—that avoids trapping users in so-called information bubbles. In this way, it will reinforce the objective of this platform, which is to show films, series and documentaries produced or co-produced by SRG SSR, in their original version subtitled or dubbed in the four Swiss national languages, in order to promote this audiovisual heritage beyond the regional and linguistic borders that characterize it.

It is expected to be completed in October 2022.

The Holmenkollen Project

P. Dillenbourg (EPFL), A. Scholefield (We Play Sport) et al., in partnership with RTS and Blick
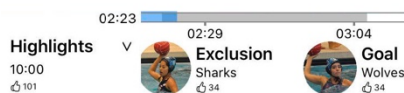
This project aims to develop an adaptive video player that automatically speeds up to interesting segments, such that the user can customize the experience to his or her own tastes and time constraints. Ultimately, media partners will be able to automate the creation of sports highlights, especially for minor sports where manual processing is not economically viable. Furthermore, the proposed solution will go beyond simply clipping highlights into fixed videos that are broadcasted to all users, to a more personalized approach that adapts to each individual.

It is expected to be completed in October 2022.

MILBOT

P.-Y. Badillo, G. Di Marzo Serugendo (UNIGE) et al., in partnership with RTS

This project aims to reach younger audiences by taking advantage of conversational tools, such as chatbots. To this end, a holistic approach was imagined from the start to take into consideration the editorial objectives of the media partner as well as the expectations of the target audiences, before designing a chatbot with the help of students from the University of Geneva. The results of this analysis as well as scenarios for conversational agents are now documented in

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a series of reports[6]. By the end of the project, this chatbot will be deployed, tested and perfected.

It is expected to be completed in March 2022.

Social network Architectures of Disinformation II (#sad II)

P. Vandergheynst (EPFL) et al., in partnership with UniNE and RTS

This project aims to better understand the activity on social networks—both from a research and journalistic perspective—by building on the results of a first project that was completed in 2020. To this end, the exploration tool[7] that was initiated in the first project is being further developed and improved to ensure that it can be used by journalists as part of their daily work. Ultimately, this should help them explore social networks quickly and efficiently, by drastically reducing the time spent on online investigations while reaching new levels in the analysis of controversies and information dissemination on these networks.

It is expected to be completed in April 2022.

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[6] https://www.media-initiative.ch/project/milbot/ (login required)

[7] https://lts2-imi-demo.epfl.ch/ (login required)

Completed projects

- **Social network Architectures of Disinformation (#sad)**; 2019–2020; P. Vandergheynst (EPFL) et al., in partnership with UniNE and RTS

- **Fake News, Audiences and Journalism**; 2019–2020; S. Salerno (UNIGE), N. Pignard-Cheynel (UniNE) et al., in partnership with Le Temps

- **Traceable Original Journalistic Content (TOJC)**; 2019–2020; N. Glassey Balet (HES-SO Valais-Wallis) et al., in partnership with ESH Médias

- **Media Observatory Initiative**; 2019–2020; K. Aberer (EPFL) et al., in partnership with Le Temps

- **Scientific Expertise and Media Discourse**; 2019–2020; A. Chevalier (Universities of Western Switzerland - RTS), B. Beaude, L. Kaufmann (UNIL), U. Fischer (Memoways) et al., in partnership with RTS and Le Temps

- **Trust Over Time**; 2019–2020; N. Henchoz (EPFL), D. Gatica-Perez (Idiap Research Institute) et al., in partnership with RTS

- **The Role of Communication Strategies and Media Discourse during the COVID-19 Outbreak**; 2020–2021; S. Salerno (UNIGE), N. Pignard-Cheynel (UniNE) et al., in partnership with an international consortium

- **Four Condos and a Containment**; 2020; Y. Rochat (EPFL/UNIL), P. Ronga (Le Temps) et al., in partnership with Le Temps

- **Mobility Data in Switzerland during the COVID-19 Outbreak**; 2020; F. Fischbacher, C. Iaz, P. Ronga (Le Temps), T. Félix (RTS), in partnership with Swisscom

- **Media Laboratory**; 2020–2021; K. Aberer (EPFL) et al., in partnership with UniNE and Heidi.news

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Events organized by IMI

Do you speak data?
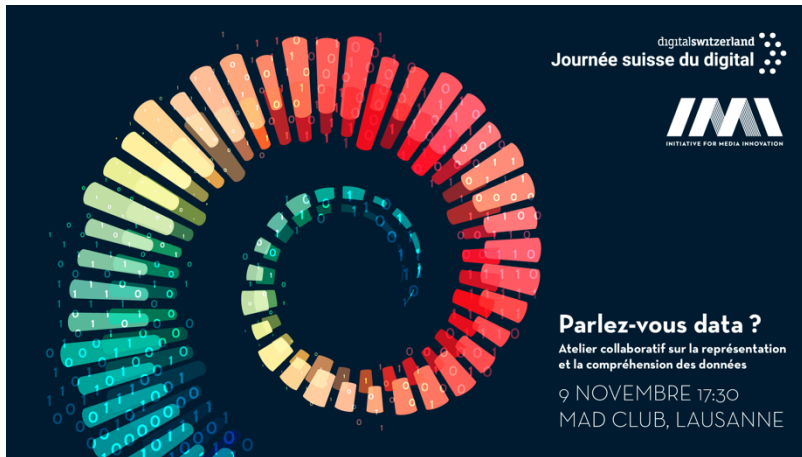
As we are reminded by the Covid-19 health crisis, data are now central to our society and our relationship to data is therefore becoming a major issue. For this reason, it is essential to stimulate data literacy, which implies promoting access to data and the ability of non-specialists to read, work with, analyze and argue with data.

On 9 November, as part of the Swiss Digital Day 2021[8], EPFL, the University of Neuchâtel, Heidi.news and RTS organized, with support from IMI, a collaborative workshop in Lausanne on data literacy with journalists, researchers and experts.

What role do data play in shaping public opinion? Do the news media deal with data in an appropriate manner? What relationship do citizens have with data and their visual representation? This event, which brought together around 50 participants, was an opportunity to deconstruct the simple relationship we have sometimes with data, in small groups, through hands-on experience and the sharing of ideas.

The "Media Laboratory" project (2020-2021) was the starting point for this collaborative workshop on data representation and understanding. Therefore, the event was also an opportunity to showcase the results of the project and to raise awareness on the issues it addressed.

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[8] https://www.digitaltag.swiss/en/

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Figure 5: Photos of participants and speakers taken during the workshop (© 2021 Alain Herzog).

Outreach and communication activities

Scientific publications

Beliefs in Conspiracy Theories and Misinformation About COVID-19: Comparative Perspectives on the Role of Anxiety, Depression and Exposure to and Trust in Information Sources; D.D. Coninck, T. Frissen, K. Matthijs, L. d'Haenens, G. Lits, O. Champagne-Poirier, M.-E. Carignan, M.D. David, N. Pignard-Cheynel, S. Salerno, M. Généreux; Frontiers in Psychology 2021, 12, 646394

Keypoint Communities; D. Zauss, S. Kreiss, A. Alahi; Proceedings of the IEEE/CVF International Conference on Computer Vision (ICCV) 2021, 11057-11066

Naviguer dans les traces numériques sur Twitter. Retour sur la conception d'un dispositif de cartographie de données à destination de journalistes; V. Carlino, N. Pignard-Cheynel, L. Loubère, B. Ricaud, N. Aspert; Revue Intelligibilité du numérique, 2|2021

The Evolution in Anxiety and Depression with the Progression of the Pandemic in Adult Populations from Eight Countries and Four Continents; M. Généreux, P.J. Schluter, E. Landaverde, K.K. Hung, C.S. Wong, C. Pui Yin Mok, G. Blouin-Genest, T. O'Sullivan, M.D. David, M.-E. Carignan, O. Champagne-Poirier, N. Pignard-Cheynel, S. Salerno, G. Lits, L. d'Haenens, D.D. Coninck, K. Matthys, É. Champagne, N. Burlone, Z. Qadar, T. Herbosa, G. Ribeiro-Alves, R. Law, V. Murray, E.Y.Y. Chan, M. Roy; International Journal of Environmental Research and Public Health 2021, 18, 4845

Trust Indicators and Explainable AI: A Study on User Perceptions; D. Ribes, N. Henchoz, H. Portier, L. Defayes, T.T. Phan, D. Gatica-Perez, A. Sonderegger; In: Human-Computer Interaction – INTERACT 2021, C. Ardito et al. (eds); INTERACT 2021, Lecture Notes in Computer Science, 12933; Springer, Cham

Project reports (open access)

Media Laboratory - Compte rendu des étapes clés du projet; J. Rappaz, A. Robotham, N. Pignard-Cheynel; Initiative for Media Innovation, 2021, Lausanne, Switzerland

Media Laboratory - Démocratiser et favoriser la pratique du datajournalisme (I) : un état des lieux; L. Würgler; Initiative for Media Innovation, 2021, Lausanne, Switzerland

Media Laboratory - Démocratiser et favoriser la pratique du datajournalisme (II) : recommandations en vue d'un développement d'outils techniques; L. Würgler, N. Pignard-Cheynel, A. Robotham; Initiative for Media Innovation, 2021, Lausanne, Switzerland

Media Laboratory - La réception du tableau de bord climat et les conditions générales d'intelligibilité des données - Synthèse d'une enquête par questionnaire; A. Robotham, N. Pignard-Cheynel; Initiative for Media Innovation, 2021, Lausanne, Switzerland

Media Laboratory - Dispositif didactique : quelle pertinence pour les praticiens ?; A. Robotham, N. Pignard-Cheynel; Initiative for Media Innovation, 2021, Lausanne, Switzerland

Events organized by IMI

09.11 **Do you speak data?**; Swiss Digital Days 2021, Lausanne, Switzerland; with C. Choirat, A. Holzer, M. Krichane, B. Loison, S. Meyer, N. Pignard-Cheynel, M. Polla, A. Robotham and S. Sermondadaz

Project presentations

25.03   **IM NEWS**; SRG SSR Hackdays 2021; with Z. Liu and M. Delaloye

25.03   **Tracking Disinformation and Controversies in Social Networks**; SRG SSR Hackdays 2021; with B. Ricaud, N. Aspert and V. Carlino

16.09   **Expertise scientifique et discours médiatiques**; ScienceComm'21; with Agathe Chevalier

29.09   **Fake news et journalism**; Université des Médias et des Droits Humains, Apprentissages Sans Frontières - ASF; with V. Carlino

15.10   **Les audiences et le datajournalisme : analyse de réception et des conditions d'intelligibilité**; Quatrième colloque de l'Alliance internationale de recherche sur les pratiques et la pédagogie du journalisme (Arppej); with N. Pignard-Cheynel and A. Robotham

In the media

20.01   **La mobilité des Romands révèle la faible réaction à la deuxième vague**; RTSinfo, RTS; by T. Félix and in collaboration with P. Ronga (Le Temps)

20.01   **Les Romands se sont davantage déplacés en novembre qu'au mois de mars**; Le Temps; by F. Fischbacher, P. Ronga and C. Iaz

21.01   **La mobilité des Romands révèle la faible réaction à la deuxième vague**; La Matinale, RTS

24.03   **Le taux d'occupation en soins intensifs continue de stagner**; Heidi.news; visualization by F. Quellec

25.03   **#NoLiestal: Après les marches contre les mesures Covid, la réponse s'organise sur Twitter**; Heidi.news; by K. Marcos and F. Quellec

N/A   **Les grandes étapes de la pandémie**; Heidi.news; visualization by F. Quellec

01.06   **Tableau de bord climat**; Heidi.news; by K. Marcos, F. Quellec, R. Haübi, F. Hiard, S. Sermondadaz and L. Stöcklin

02.09   **Artificial Intelligence and Trust in Digital Media**; EPFL+ECAL Lab News; by N. Henchoz, H. Portier, L. Défayes, D. Ribes, Y. Kalberer, C. Duchêne and A. Sonderegger

06.11   **Parlez-vous data? De l'utilisation des données en journalism**; Médialogues, RTS; with S. Sermondadaz

15.11   **Le Covid-19 a démocratisé le data-journalisme**; EJO; with N. Pignard-Cheynel and A. Robotham

About us

We are active since January 2018 after being jointly founded by EPFL, Ringier AG, SRG SSR and Triangle Azur (a cooperation network between the Universities of Geneva, Lausanne and Neuchâtel). Our main goal is to support the transformation of the media sector by initiating research and innovation projects with affiliated universities and in partnership with our media members, and to engage with a wider community involving researchers, media professionals and investors. IMI is open to all private and public organizations who wish to join and are active in the relevant fields.

Founding and supporting members

Affiliate and supporting members

Main partner organizations

Governance

IMI Board

The Board is the final authority for all decisions regarding IMI and is responsible for our strategic orientations and development.

Yves Flückiger
UNIGE/Triangle Azur
Chairperson

Pascal Crittin
RTS/SSR

Anna Fontcuberta i Morral
EPFL

Ladina Heimgartner
Ringier AG

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IMI Scientific Committee

The Scientific Committee makes recommendations to the Board on collaborative projects and assists the Director in managing our activities.

Nathalie Pignard-Cheynel
UniNE/Triangle Azur
Chairperson

Gaël Hürlimann
Ringier AG

Prof. Anne-Marie Kermarrec
EPFL

Christophe Schenk
RTS/SSR

Laurent Sciboz
HES-SO Valais-Wallis

EPFL Media Center

We are hosted by EPFL where the Media Center is in charge of running the Initiative and acts as an interface between academic institutions and media companies.

Mounir Krichane
Director

Leonor Camporeale
Administrative Assistant

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