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# André Panisson, Ph.D.

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## PROFESSIONAL SUMMARY

**Principal Research Scientist** and **Team Lead** specializing in **Responsible and Resilient AI** for regulated and high-stakes domains. My work integrates **explainability**, **interpretability**, **fairness quantification**, and **governance-ready evaluation pipelines** to make AI systems **auditable, transparent, and verifiable**. I lead the **Responsible AI Group** at CENTAI, bridging fundamental research and industrial deployment in collaboration with finance, healthcare, and public institutions. Publications across NeurIPS, KDD, TMLR, TKDE, and WWW, with 15+ years at the interface of academic innovation and industrial R&D.

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## CORE COMPETENCIES

- **Responsible AI & AI Safety:** interpretability, fairness quantification, alignment, evaluation pipelines.
  - **Explainable / Interpretable / Concept-Based AI:** interpretable representations, concept bottlenecks, explanation validation, mechanistic interpretability.
  - **Graph & Multimodal ML:** graph explainers, counterfactuals, agent behavior modeling, document intelligence.
  - **Industry Co-design & Funding:** requirements elicitation with business owners; PI and work-package leadership in EU consortia (PRE-ACT).
  - **Scientific Leadership:** group head (Responsible AI @ CENTAI); PhD supervision; coordination within EU Horizon 2020/Europe programmes (WP lead, PI/partner).
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## SELECTED ACHIEVEMENTS & IMPACT

- **Led Responsible AI team @ CENTAI:** operationalized decision intelligence with explainability/fairness from the outset; mentored and guided interdisciplinary projects to deployment.
  - **Industry collaboration:** directed GenAI for **document intelligence** and **anti-financial-crime** initiatives with measurable efficiency and interpretability gains; shaped proposals from stakeholder needs to funded projects.
  - **EU PI & multi-partner leadership:** PI of **PRE-ACT** Phase III trial on AI-assisted radiotherapy decisions; led **WP on Fair, Transparent & Ethical AI** (bias-aware pipelines, practical guidelines).
  - **Open tools & education:** created **Gephi Graph Streaming**; long-running **Data Mining** courses; OSS visual analytics (datainterfaces.org).
  - **Publications in top venues:** NeurIPS 2025 (fairness; agent behavior modeling), KDD 2025 (efficient GNN training), TKDE/TMLR/xAI on interpretability and graph explainers.
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## PROFESSIONAL EXPERIENCE

**CENTAI Institute** — *Principal Researcher, Team Lead – Responsible AI*  
Turin, Italy | 2022–Present

- Lead the **Responsible AI team**, designing methodologies and tools that promote **explainability, fairness, and transparency** in AI systems, with a focus on accountability and human-centric design.
- Directed industry collaborations on GenAI for legal document analysis and financial crime compliance.
- Oversaw the development of AI solutions to enhance anti-financial crime compliance in banking environments, aligning technical innovation with regulatory compliance.
- Led applied research projects on detection of online coordinated inauthentic behavior, contributing to safer digital ecosystems.
- Mentored interdisciplinary teams and supervised PhD/MSc research in Responsible AI.

**ISI Foundation** — *Senior Research Scientist*  
*Turin, Italy | 2012–2022*

- Built data analysis tools and ML models to study human behavior, epidemic spreading, and digital trace analytics.
- Built real-time interaction monitoring systems with wearable sensors (SocioPatterns).
- Co-authored open-source data visualization tools (datainterfaces.org, ebolatracking.org).
- Delivered open-source tools for visual analytics (e.g., datainterfaces.org, ebolatracking.org).
- Led collaborations in fairness-aware analytics, public health modeling and health insurance risk.

**Insight Data Science** — *Fellow*  
*Palo Alto, CA | 2012*

- Created a real-time hot-topic tracker on Twitter using graph-based user expansion (Python + D3.js)

**University of Turin** — *PhD Researcher & Lecturer*  
*Turin, Italy | 2009–2011*

- Developed recommender systems and mobile-aware collaborative filtering algorithms.
- Created the Gephi Graph Streaming plugin for dynamic graph visualization.
- Lectured in cryptography, complex networks, and recommender systems.

**Xeffe / ValueTeam** — *Software Architect*  
*Turin, Italy | 2008–2011*

- Led architectural design for banking platforms (Java, Oracle).
- Optimized data pipelines and transaction throughput across hybrid systems.

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**EDUCATION**

**Ph.D. Computer Science**, *University of Turin, Italy | 2009–2011*  
*Thesis: Selective Information Dissemination for Mobile Computing*

**M.Sc. Computer Science**, *Federal University of Rio Grande do Sul, Brazil | 2004–2006*  
*Thesis: P2P-Based Network Management Solution*

**B.Sc. Computer Science**, *Federal University of Rio Grande do Sul, Brazil | 1999–2003*

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**FUNDING & CONSORTIA**

- **EU Horizon Projects:** Principal Investigator (PRE-ACT) and Partner (CEDAR) on fairness, transparency, and governance-ready AI; leadership in Horizon 2020/Europe programmes.
- **Industry Partnerships:** Directed multi-year collaborations with Intesa Sanpaolo (legal litigation risk estimation, GenAI for passive guarantees analysis, churn prediction from behaviour history) and AFC-DH (explainability platforms, synthetic data evaluation, payment filtering).
- **Cross-sector & International Collaboration:** Prior work with utilities, US health-insurance, public-health agencies, and urban-mobility partners.

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## TEACHING & SUPERVISION

- **Adjunct Professor**, *University of Turin* (2013–2025): Course on *Data Mining, Statistical Modeling and Machine Learning* within the MSc in Physics of Complex Systems.
- **Doctoral Supervision**: Advisor for Simone Piaggese (Graph Learning, Univ. Bologna) and Arianna Miola (Explainable AI, Univ. Bicocca); co-supervision of multiple theses on fairness and interpretability.
- **Graduate Mentoring**: Supervised MSc research on fairness, graph explainability, synthetic data, and agent-based modeling.
- **Training & Outreach**: Instructor for *Big Dive* Data Science Program (2012–2020), integrating academic and industry participants in practical machine learning and visualization.

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## COMMUNITY & SERVICE

- **Leadership & Editorial**: President, *Scientific Advisory Board* – Anti-Financial Crime Digital Hub; Guest Editor, *EPJ Data Science*.
- **Conference Organization**: Chair, *KDD Cup 2024*; Area Chair, *The WebConf 2024*; Special Event Chair, *AI for Financial Crime Fight* (ECML PKDD 2023); Track Chair, *Applied Explainable AI* (AMLD 2024).
- **Academic & Professional Service**: Reviewer and PC member for top-tier AI, ML, and Responsible AI venues (NeurIPS, ICLR, KDD, WWW, xAI, TMLR).

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## SELECTED PUBLICATIONS

- **Size-adaptive Hypothesis Testing for Fairness**, NeurIPS 2025
- **Learning Individual Behavior in Agent-Based Models with Graph Diffusion Networks**, NeurIPS 2025
- **Disentangled and Self-Explainable Node Representation Learning**, TMLR 2025
- **Fast and Effective GNN Training through Sequences of Random Path Graphs**, KDD 2025
- **Adversarial Online Collaborative Filtering**, ALT 2024
- **Evaluating Link Prediction Explanations for GNNs**, xAI 2023
- **Global Misinformation Spillovers in the Vaccination Debate**, JMIR 2023

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## PUBLICATIONS

- A. Ferrara, F. Cozzi, A. Perotti, A. Panisson, F. Bonchi. **Size-adaptive Hypothesis Testing for Fairness**. *Neural Information Processing Systems* (NeurIPS 2025).
- F. Cozzi, M. Pangallo, A. Perotti, A. Panisson, C. Monti. **Learning Individual Behavior in Agent-Based Models with Graph Diffusion Networks**. *Neural Information Processing Systems* (NeurIPS 2025).
- F. Bonchi, C. Gentile, F.P. Nerini, A. Panisson, F. Vitale. **Fast and Effective GNN Training through Sequences of Random Path Graphs**. In *Proceedings of the 31st ACM SIGKDD Conference on Knowledge Discovery and Data Mining* (KDD 2025).
- E. Pastor, E. Poeta, A. Panisson, A. Perotti, G. Ciravegna, G. **Beyond Input Attribution: A Hands-On Tutorial to Concept-Based Explainable AI and Mechanistic Interpretability**. In *Proceedings of the 31st ACM SIGKDD Conference on Knowledge Discovery and Data Mining* (KDD 2025).

- S. Piaggese, A. Panisson, M. Khosla. **Disentangled and Self-Explainable Node Representation Learning**. *Transactions on Machine Learning Research* (TMLR 2025).
- A. Perotti, C. Borile, A. Miola, F. P. Nerini, P. Baracco, A. Panisson. **Explainability, Quantified: Benchmarking XAI Techniques**. In *World Conference on Explainable Artificial Intelligence* (xAI 2024).
- S. Piaggese, M. Khosla, A. Panisson, and A. Anand. **Dine: Dimensional interpretability of node embeddings**. *IEEE Transactions on Knowledge and Data Engineering* (TKDE 2024)
- Nerini, Francesco Paolo, Paolo Bajardi, and André Panisson. **Value is in the Eye of the Beholder: A Framework for an Equitable Graph Data Evaluation**. In *Proceedings of the 2024 ACM Conference on Fairness, Accountability, and Transparency* (FACCT 2024)
- Monti, Corrado, Paolo Bajardi, Francesco Bonchi, André Panisson, and Alan Perotti. **A True-to-the-model Axiomatic Benchmark for Graph-based Explainers**. *Transactions on Machine Learning Research* (TMLR 2024).
- S. Pasteris, F. Vitale, M. Herbster, C. Gentile, A. Panisson. **Adversarial Online Collaborative Filtering**. In *Proceedings of the 35th International Conference on Algorithmic Learning Theory* (ALT 2024).
- A. Battiston, L. Napoli, P. Bajardi, A. Panisson, A. Perotti, M. Szell, R. Schifanella. **Revealing the determinants of gender inequality in urban cycling with large-scale data**. *EPJ Data Science*. 12(1): 9 (2023)
- C. Borile, A. Perotti, A. Panisson. **Evaluating Link Prediction Explanations for Graph Neural Networks**. In: *Explainable Artificial Intelligence*. xAI 2023. *Communications in Computer and Information Science*, vol 1902. (2023)
- F. Dibitonto, F. Garcea, A. Panisson, A. Perotti, L. Morra, L. **HOLMES: HOLonym-MERonym Based Semantic Inspection for Convolutional Image Classifiers**. In: *Explainable Artificial Intelligence*. xAI 2023. *Communications in Computer and Information Science*, vol 1902. (2023)
- A. Perotti, S. Bertolotto, E. Pastor, A. Panisson. **Beyond One-Hot-Encoding: Injecting Semantics to Drive Image Classifiers**. In: *Explainable Artificial Intelligence*. xAI 2023. *Communications in Computer and Information Science*, vol 1902, 525-548. (2023)
- A. Perotti, P. Bajardi, F. Bonchi, A. Panisson. **Explaining Identity-aware Graph Classifiers through the Language of Motifs**. *Proceedings of the 2023 International Joint Conference on Neural Networks* (IJCNN). (2023)
- J. Lenti, Y. Mejova, K. Kalimeri, A. Panisson, D. Paolotti, M. Tizzani, M. Starnini. **Global Misinformation Spillovers in the Vaccination Debate Before and During the COVID-19 Pandemic: Multilingual Twitter Study**. *JMIR Infodemiology*. 2023 May 24;3:e44714. (2023)
- A. Capozzi, G. D. F. Morales, Y. Mejova, C. Monti, and A. Panisson. **The Thin Ideology of Populist Advertising on Facebook during the 2019 EU Elections**. In *Proceedings of the ACM Web Conference 2023* (WWW '23). (2023)
- S. Piaggese, A. Panisson, & G. Petri. **Effective Higher-order Link Prediction and Reconstruction from Simplicial Complex Embeddings**. In *Learning on Graphs Conference* (pp. 55-1). PMLR. (2022)
- S. Piaggese & A. Panisson. **Time-varying graph representation learning via higher-order skip-gram with negative sampling**. *EPJ Data Science*, 11(1), 33. (2022)
- C. Rollo, G. De Francisci Morales, C. Monti, & A. Panisson. **Communities, Gateways, and Bridges: Measuring Attention Flow in the Reddit Political Sphere**. In *Social Informatics: 13th International Conference, SocInfo 2022, Glasgow, UK, October 19–21, 2022, Proceedings* (pp. 3-19). (2022)

- G. Crupi, Y. Mejova, M. Tizzani, D. Paolotti, and A. Panisson. **Echoes through time: Evolution of the italian covid-19 vaccination debate**. In Proceedings of the International AAAI Conference on Web and Social Media (Vol. 16, pp. 102-113). (2022)
- S. Giurgola, S. Piaggese, M. Karsai, Y. Mejova, A. Panisson & M. Tizzoni. **Mapping urban socioeconomic inequalities in developing countries through facebook advertising data**. *Frontiers in big Data*, 5. (2021)
- C. Panigutti, A. Perotti, A. Panisson, P. Bajardi, & D. Pedreschi. **FairLens: Auditing black-box clinical decision support systems**. *Information Processing & Management*, 58(5), 102657. (2021)
- E. G. Amparore, F. Cinus, C. Maestri, L. Petrocchi, D. Polinelli, F. Scarpa, A. Perotti, A. Panisson, P. Bajardi. **Forecast of Distributed Energy Generation and Consumption in a Partially Observable Electrical Grid: A Machine Learning Approach**, 2021 IEEE Madrid PowerTech, pp. 1-6. (2021)
- M. Starnini, C. E. Tsourakakis, M Zamanipour, A. Panisson, W. Allasia, M. Fornasiero, L. Li Puma, V. Ricci, S. Ronchiadin, A. Ugrinoska, M. Varetto, D. Moncalvo. **Smurf-Based Anti-money Laundering in Time-Evolving Transaction Networks**. *Joint European Conference on Machine Learning and Knowledge Discovery in Databases*. Springer, Cham. (2021)
- A. Capozzi, G. De Francisci Morales, Y. Mejova, C. Monti, A. Panisson, & D. Paolotti. **Clandestino or Rifugiato? Anti-immigration Facebook Ad Targeting in Italy**. In Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems (pp. 1-15). (2021)
- F. Poletto, Y. Zhang, A. Panisson, Y. Mejova, D. Paolotti, & S. Ponserre. **Developing Annotated Resources for Internal Displacement Monitoring**. In Companion Proceedings of the Web Conference 2021 (pp. 136-144). (2021)
- A. Capozzi, G. De Francisci Morales, Y. Mejova, C. Monti, A. Panisson, & D. Paolotti. **Facebook Ads: Politics of Migration in Italy**. In *International Conference on Social Informatics* (pp. 43-57). (2020)
- N. Gozzi, M. Tizzani, M. Starnini, F. Ciulla, D. Paolotti, A. Panisson, & N. Perra. **Collective response to media coverage of the COVID-19 pandemic on Reddit and Wikipedia: mixed-methods analysis**. *Journal of medical Internet research*, 22(10), e21597. (2020)
- F. Cinus, F. Bonchi, C. Monti, A. Panisson. **Generating Realistic Interest-Driven Information Cascades**. In *Proc. of the International AAAI Conference on Web and Social Media* (Vol. 14, pp. 107-118). (2020)
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- D. Balsamo, P. Bajardi, A. Panisson. **Firsthand Opiates Abuse on Social Media: Monitoring Geospatial Patterns of Interest Through a Digital Cohort**. In *Proceedings of the 2019 World Wide Web Conference*. (2019)
- S. Piaggese, L. Gauvin, M. Tizzoni, C. Cattuto, N. Adler, S. Verhulst, A. Panisson. **Predicting City Poverty Using Satellite Imagery**. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition Workshops* (pp. 90-96). (2019)
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- mass casualty incident exercise: a feasibility study** Journal of medical internet research 21 (4), e12251 (2019)
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- P. Bajardi, M. Delfino, A. Panisson, G. Petri, M. Tizzoni. **Unveiling patterns of international communities in a global city using mobile phone data.** EPJ Data Science 4, no. 1 (2015): 1-17.
- L. Gauvin, A. Panisson, A. Barrat, C. Cattuto. **Revealing latent factors of temporal networks for mesoscale intervention in epidemic spread.** arXiv preprint arXiv:1501.02758(2015).
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- A. Panisson, L. Gauvin, M. Quaghiotto, C. Cattuto. **Mining Concurrent Topical Activity in Microblog Streams.** Proc. of the the 4th Workshop on Making Sense of Microposts, co-located with the 23rd Intl. World Wide Web Conference (WWW 2014), Seoul, Korea, April 2014 (Best Paper Award).
- L. Gauvin, A. Panisson, C. Cattuto. **Detecting the community structure and activity patterns of temporal networks: a non-negative tensor factorization approach.** PLOS ONE 9.1 (2014): e86028.
- L. Gauvin, A. Panisson, C. Cattuto, A. Barrat. **Activity clocks: spreading dynamics on temporal networks of human contact.** Scientific Reports, v. 3, p. 3099, 2013.
- C. Cattuto, M. Quaghiotto, A. Panisson, A. Averbuch. **Time-varying social networks in a graph database.** In: First International Workshop on Graph Data Management Experiences and Systems - GRADES '13. New York: ACM Press, 2013.
- A. Panisson, L. Gauvin, A. Barrat, C. Cattuto. **Fingerprinting temporal networks of close-range human proximity.** Intl. Workshop on the Impact of Human Mobility in Pervasive Systems and Applications (PerMoby 2013), March 18 2013, San Diego, CA
- A. Panisson, A. Barrat, C. Cattuto, G. Ruffo, R. Schifanella. **On Human Proximity Dynamics for Data Diffusion through Ad-Hoc Networks.** Ad Hoc Networks, Special Issue on Social-Based routing in Mobile and Delay-Tolerant Networks. Volume 10, Issue 8, November 2012, Pages 1532-1543
- C. Melchior, D. T. Mattjie, C. R. P. dos Santos, A. Panisson, L. Z. Granville and L. M. Tarouco. **A P2P-Based Strongly Distributed Network Polling Solution.** Advancements in Distributed Computing and Internet Technologies: Trends and Issues. IGI Global, 2012. 289-313.
- A. Basso, M. Milanese, A. Panisson, G. Ruffo. **On Collaborative Filtering Techniques for Live TV and Radio Discovery and Recommendation.** In Proc. of the 12th International Conference on Electronic Commerce and Web Technologies (EC-Web 2011), Toulouse, France, August 29 - September 2, 2011.

- A. Basso, M. Milanesio, A. Panisson. **From Recordings to Recommendations: Suggesting Live Events in the DVR Context.** In RecSys 2010: Proc. of the International Workshop on the Practical Use of Recommender Systems, Algorithms and Technologies, Barcelona, Spain, 30 September 2010.
- Basso, M. Milanesio, A. Panisson. **Social Aspects of Video Recording.** In AISB10: Proc. of the Thirty Sixth Annual Convention of the Society for the Study of Artificial Intelligence and Simulation of Behaviour, Leicester, UK, 29 March - 1 April 2010.
- C. Melchiors, A. H. dos Santos, D. Mattjie, C. R. dos Santos, A. Panisson, L. Z. Granville, L. M. R. Tarouco. **A network polling solution through a P2P-based distributed management environment.** In SAC '10: Proceedings of the 2010 ACM Symposium on Applied Computing (Sierre, Switzerland, March 22 - 26, 2010). ACM, New York, pp. 729-730.
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- C. C.. Marquezan, A. Panisson, L. Z. Granville, G. Nunzi, M. Brunner. **Maintenance of Monitoring Systems Throughout Self-Healing Mechanisms.** In DSOM 2008: Proceedings of the 19th IFIP/IEEE International Workshop on Distributed Systems: Operations and Management, 22-26 September 2008, Samos Island, Greece, pp. 176-188, 2008.
- A. Panisson, G. Ruffo, and R. Schifanella. **X-hinter: a framework for implementing social oriented recommender systems.** In HT '08: Proceedings of the Nineteenth ACM Conference on Hypertext and Hypermedia (Pittsburgh, PA, USA, June 19 - 21, 2008). ACM, New York, NY, p. 235-236, 2008.
- A. Panisson, D. M. Rosa, C. Melchiors, L.Z. Granville, M. J. B. Almeida, L. M. R. Tarouco. **Designing the Architecture of P2P-Based Network Management Systems.** In ISCC2006: Proceedings of the 2006 IEEE Symposium on Computers and Communications. p. 69-75, 2006.
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- A. Panisson, M. J. B. Almeida, L. M. R. Tarouco, L. Z. Granville. **Implementação de um Algoritmo para Busca em Redes Peer-to-Peer. (Implementation of a Search Algorithm for P2P Networks).** In: Proc. of the Brazilian Workshop on Peer-to-Peer Systems (WP2P2005), 2005, Fortaleza. v. 1. p. 25-36.