

Curriculum Vitae for Jhony H. Giraldo

Assistant Professor in Machine Learning and Computer Vision

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Research Profile

My research focuses on **machine learning** and **signal processing** for relational data such as graphs and higher-order structures. I am also interested in several applications in science and engineering, including some problems in computer vision, circuit design, environmental monitoring, materials analysis, and underwater acoustics. I have established a research program with over €900k in funding (ANR, Hi! Paris, IMT, TotalEnergies, NVIDIA), and contributed as a team member to an additional €531k ANR project. I actively contribute to the scientific community as a program committee member and journal reviewer (NeurIPS, ICML, ICLR, JMLR, IEEE TSP, among others), and as an organizer of international workshops. I also collaborate with industry partners such as TotalEnergies. I am a member of the [ELLIS Society](#) (European AI network of excellence).

Grants and Funding Sources

- IMT Futur, Ruptures & Impacts PhD Project “Compressing Graph Data: From Signal Processing to Machine Learning”. **Role:** Supervisor. € 155,000. 2026 - 2029.
- Agence Nationale de la Recherche (ANR) Project DeSNAP “*Deep Simplicial Neural Networks for Advanced Geometry Processing*”. **Role:** PI. € 337,862. 2025 - 2029.
- Hi! Paris Funding:
 - Synergy Fellowship, Project SIGMA **Role:** Co-PI. € 200,000. 2026 - 2029.
 - Half PhD Fellowship (Antoine Vialle) **Role:** Supervisor. € 78,000. 2025 - 2028.
 - Postdoc Fellowship (Aref Einizade) **Role:** Supervisor. € 120,000. 2023 - 2025.
- Agence Nationale de la Recherche (ANR) Project SODA “*System On Chip Design Leveraging Artificial Intelligence*”. **Role:** Team Member. € 531,000. 2023 - 2027.

Selected Publications    (see complete list in Appendix, page 6)

Machine Learning:

- Dorian Gailhard, Enzo Tartaglione, Lirida Naviner, **Jhony H. Giraldo**, “*Feature-Aware (Hyper)graph Generation via Next-Scale Prediction*”, International Conference on Machine Learning (ICML), 2026.
- Aref Einizade, Dorina Thanou, Fragkiskos D. Malliaros, **Jhony H. Giraldo**, “*Continuous Simplicial Neural Networks*”, Advances in Neural Information Processing Systems (NeurIPS), 2025.
- Aref Einizade, Fragkiskos D. Malliaros, **Jhony H. Giraldo**, “*Continuous Product Graph Neural Networks*”, Advances in Neural Information Processing Systems (NeurIPS), 2024.

Computer Vision:

- Julian Santamaria, Claudia Isaza, **Jhony H. Giraldo** “*WildIng: A Wildlife Image Invariant Representation Model for Geographical Domain Shift*”, International Journal of Computer Vision, 2026.
- Gabriele Spadaro, Marco Grangetto, Attilio Fianrotti, Enzo Tartaglione, **Jhony H. Giraldo**, “*WiGNet: Windowed Vision Graph Neural Network*”, IEEE/CVF Winter Conference on Applications of Computer Vision (WACV), 2025. (**Oral**).
- **Jhony H. Giraldo**, Sajid Javed, Thierry Bouwmans, “*Graph Moving Object Segmentation*”, IEEE Transactions on Pattern Analysis and Machine Intelligence, 2020.

Signal Processing:

- Jhon A. Castro-Correa, **Jhony H. Giraldo**, Mohsen Badiy, Fragkiskos D. Malliaros. “*Gegenbauer Graph Neural Networks for Time-varying Signal Reconstruction*”, IEEE Transactions on Neural Networks and Learning Systems, 2024.
- **Jhony H. Giraldo**, Arif Mahmood, Belmar Garcia-Garcia, Dorina Thanou, Thierry Bouwmans, “*Reconstruction of Time-varying Graph Signals via Sobolev Smoothness*”, IEEE Transactions on Signal and Information Processing over Networks, 2022.

Academic Appointments

Assistant Professor in Machine Learning and Computer Vision (Permanent) Télécom Paris, Institut Polytechnique de Paris, Palaiseau, France	Oct 2022 - Present
• Visiting Professor at EPFL, LTS4 laboratory, Switzerland with grant from EuroTech	Oct 2024 - Nov 2024
Research Assistant in Graph Signal Processing University of Delaware, Newark, DE, USA	Sep 2018 - Aug 2019

Education

Doctor of Philosophy in Applied Mathematics La Rochelle Université, La Rochelle, France	Oct 2019 - Sep 2022
• Visiting PhD Student at CentraleSupélec, Inria, Université Paris-Saclay, France	Jan 2022 - May 2022
• Visiting PhD Student at Università di Napoli Parthenope, CVPR Lab, Italy	Aug 2021 - Nov 2021
• Lecturer at La Rochelle Université, France	Sep 2020 - Jun 2021
Master of Science in Engineering (with Honors) Universidad de Antioquia, Medellin, Colombia	Aug 2016 - Aug 2018
• Visiting Research Scholar at the University of Delaware, USA	Jun 2018 - Aug 2018
• Lecturer at Universidad de Antioquia, Colombia	Aug 2017 - Jun 2018
Bachelor of Science in Electronics Engineering Universidad de Antioquia, Medellin, Colombia	Feb 2011 - Mar 2016
• Teaching Assistant at Universidad de Antioquia, Colombia	Feb 2014 - Nov 2015

Selected Patent Applications (see complete list in Appendix, page 9)

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- Hamza Rami, Nicolas Winckler, **Jhony H. Giraldo**, Stéphane Lathuilière, “*Method for Performing Privacy-preserving Federated Learning in the Framework of Re-identification*”, U.S. Patent Application No. 19/066,561 (2025). (**Collaboration with the Company Atos**).
 - Hamza Rami, Nicolas Winckler, **Jhony H. Giraldo**, Stéphane Lathuilière, “*Method, Device, and Computer Program for Adapting an ANN Model for Person Re-identification on a Target Domain*”, U.S. Patent Application No. 18/587,155 (2024). (**Collaboration with the Company Atos**).
 - Gabriele Spadaro, **Jhony H. Giraldo**, Enzo Tartaglione, Attilio Fiandrotti, Marco Grangetto, “*Method and Device for Enhanced Image Processing using Vision Graph Neural Network*”, Italian Patent Application (2024). (**Collaboration with the Company Sisvel**).

Supervising Activities

Postdoctoral Researchers

- Dr. Aref Einizade (2023 - 2026, now assistant professor at Télécom SudParis, IP Paris).

Ph.D. Students

- Antoine Vialle (2025 - Present), Sarra Khaïri (2024 - Present), Dorian Gailhard (2024 - Present), Vahan Martirosyan (2023 - Present), Gabriele Spadaro (2023 - 2025, now postdoctoral researcher at Institut Polytechnique de Paris), Hamza Rami (2022 - 2024, now associate consultant at Headmind Partners).

Visiting Ph.D. Students

- Zepeng Zhang (EPFL, 2025), Maria J. Guerrero (Universidad de Antioquia, 2024), Muhammad R. Ur Rahman (Sapienza University of Rome, 2023).

Interns

- Bochun Jia (2026), Nada Hammad (2026), Sergei Gerasimov (2026), Matthieu Kaepelin (2026), Antoine Vialle (2025), Kian Bakhtari (2025), Julian Santamaria (2025), Vahan Martirosyan (2023), Nicolas Dunou (2023), Nacereddine Laddaoui (2023).

Master's Students

- Nada Hammad (2026), Bérénice Nghiem (2025-2026), Carolina Brandao (2025-2026), Nader Sadek (2025), Lucas Li (2025), Shifeng Xie (2024-2026), Julian Santamaria (2024-2025), Mouhamadou Thiaw (2024-2025), Amadou Sangare (2023-2024), Ayoub Benabbou (2023-2024).

Institutional Responsibilities

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- Elected Member of the *Research Committee* (Substitute), Télécom Paris, France 2025 - Present
 - Responsible for the Course *Machine Learning with Graphs (APM_5DS30-TP)*, Master Data Science and Master Data AI, Institut Polytechnique de Paris, France 2024 - Present
 - Search Committees:
 - Research Scientist, École Nationale des Ponts et Chaussées, France 2025
 - Assistant Professor, Télécom Paris, France 2025
 - Assistant Professor, Télécom Paris, France 2024
 - Member of the Department Council (IDS), Télécom Paris, France 2023 - Present
 - Responsible for PRIM Projects, AI and Data Science, Télécom Paris, France 2023 - Present
 - Responsible for the Course *Deep Learning for Computer Vision (APM_5DA12-TP)*, Master Data Science and Master Data AI, Institut Polytechnique de Paris, France 2023 - Present

Selected Teaching (see complete list in Appendix, page 10)

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- Machine Learning with Graphs (MSc, Institut Polytechnique de Paris, course lead) 2024 - Present
 - Deep Learning for Computer Vision (MSc, Institut Polytechnique de Paris, course lead) 2023 - Present

Awards and Honors

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- **Top 200 Reviewers** at ICLR 2026 and **Gold Reviewer** at ICML 2026 (top 25% of all reviewers).
 - **Best paper award** for “*Few Labels are Enough! Semi-supervised Graph Learning for Social Interaction*” published on IEEE/CVF ICCV-W (Artificial Social Intelligence Workshop) 2023.
 - Outstanding distinction master thesis (equivalent to **Magna Cum Laude**), “*Recognition of Mammal Generation Camera-trap Images using Convolutional Neural Networks*”, Universidad de Antioquia, 2018.
 - Best students SABER PRO Colombia (general examination for senior undergraduate students), 2015.

Organizing Committee

- Co-organizer, Learning on Graphs Conference, Local Meetup, Paris, France, 2024 and 2025.
- Workshop Co-chair, International Workshop “Graph Learning and Graph Signal Processing Algorithms in Computer Vision” at International Conference on Pattern Recognition (ICPR), Kolkata, India, 2024.
- Program Chair, International Workshop “LatinX in CV” (LXCV) Research at IEEE/CVF International Conference on Computer Vision (ICCV), Paris, France, 2023.
- Track Chair, Special Session “GraDSci: Graph Data Science and Applications” at IEEE International Conference on Data Science and Advanced Analytics (DSAA), Thessaloniki, Greece, 2023.
- Organization Member, 8th Junior Conference on Data Science and Engineering (JDSE), Orsay, France, 2023.
- Volunteer Chair, International Workshop “LatinX in CV” (LXCV) Research at IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), Vancouver, Canada, 2023.

Professional Service

Area Chair: BMVC 2024, NeurIPS Workshop: New Perspectives in Graph Machine Learning 2025.

Program Committee: NeurIPS 2026, ICML 2026, ICLR 2026, CVPR (2022, 2023, 2024, 2025), ICCV (2023, 2025), AISTATS 2023, ECCV (2022, 2024), ECML 2025, WACV (2025, 2026), ICASSP 2026.

Journal Reviewer: Journal of Machine Learning Research, IEEE Transactions on Pattern Analysis and Machine Intelligence, IEEE Transactions on Neural Networks and Learning Systems, IEEE Transactions on Knowledge and Data Engineering, IEEE Transactions on Image Processing, IEEE Transactions on Signal Processing, IEEE Transactions on Multimedia, IEEE Transactions on Signal and Information Processing over Networks, IEEE Signal Processing Letters, Data Mining and Knowledge Discovery, among others.

Session Chair: ICASSP (Machine Learning Oral Session) 2023.

Projects Reviewer: for ISF (Israeli funding agency), 2025.

Participation in Ph.D. Committees

PhD Committees

- Jhon A. Castro-Correa, Ph.D. in Electrical and Computer Engineering, University of Delaware (2025).
- Wieke Prummel, Ph.D. in Applied Mathematics, La Rochelle Université (2024).

Comité de Suivi (CSI) Member

- Edgar Loza Ramirez, Mines Paris-PSL (2025), Marie Arrivat, Télécom Paris (2025), Robin Courant, École Polytechnique (2023, 2024, 2025), Morgan Buisson, Télécom Paris (2023).

Invited Talks

- “*Keynote and invited speaker: The Next Frontier in Relational Learning: Higher-order Neural Networks*”, Presented between November 2025 and January 2026 at: 1) the LTCI Research Day, Palaiseau, France; and 2) Eurecom, France, virtual.
- “*Invited speaker: Hypergraph Generation and Continuous Product GNNs*”, Presented between November and December 2024 at: 1) EPFL, LTS4 Lab, Lausanne, Switzerland; and 2) ICPR Workshop, Graph Learning and Graph Signal Processing Algorithms in Computer Vision (G2SP-CV), virtual.
- “*Seminar and keynote: A Journey Through Graphs for Spatiotemporal Analysis*”, Presented between September and October 2024 at: 1) the MATHIAS Days International Conference by TotalEnergies R&D 2024, in Magny-le-Hongre, France; and 2) the DEGAS Webinar Series 2024, as a part of the IEEE SPS Data Science Initiative, virtual.

- “*Keynote: A Journey Through Graphs for Reconstructing Time Series*”, Presented in July 2024 at the IDS day of Télécom Paris, Paris, France.
- “*Seminar: Graph-based Algorithms in Computer Vision, Machine Learning, and Signal Processing*”, Presented between March and May 2022 at: 1) ESIEE, Équipe A3SI, Champs-sur-Marne, France; 2) Centrale-Supélec, Centre de Vision Numérique, Inria OPIS, Gif-sur-Yvette, France; and 3) Télécom Paris, Multimedia Team, Palaiseau, France.
- “*Seminar: Graph-based Algorithms in Computer Vision and Machine Learning: Theory and Applications*”, Presented in November 2021, at Università di Napoli Parthenope, Naples, Italy.
- “*Graph Moving Object Segmentation*”, Presented in October 2021, at DAGM German Conference on Pattern Recognition (Pattern Recognition and Computer Vision Nectar Track), Virtual.
- “*The Emerging Field of Graph Signal Processing: Overview and Applications to Computer Vision and Machine Learning*”, Presented in September 2020, at Innovation, Technology and Engineering Congress (ITEC 2020 - Virtual), La Paz, Bolivia.

Media Coverage

- l’IMTech: “*Quand l’IA met des mots sur le vivant*”, September 2025 ([in French](#)).

Membership in Scientific Associations

- ELLIS Society (European Laboratory for Learning and Intelligent Systems), Paris Unit 2025 - Present

Small Grants

- Consulting for the project “*Perovskite Solar Cell Property Prediction with Geometric Graph Neural Networks*”, TotalEnergies One Tech. € 8,700.
- NVIDIA Academic Grant Program Award “*Bridging the Gap between Foundation Models and Camera Trap Image Recognition*”. **Role:** PI. 10,000 A100 GPU-Hours. Jan 2025 - Jun 2025.
- Grant “*EuroTech Visiting Professor Programme*”, EuroTech, 2024. € 3,000.
- Grant “*Mobilité Internationale*”, Institut DATAIA, Université Paris-Saclay, 2022. € 5,000.
- Grant “*Mobilité Internationale des Doctorants*”, La Rochelle Université, 2021. € 3,600.

Languages

Spanish: Native Language.

English and French: Full Professional Proficiency.

Appendix

Full List of Publications

Journal Papers

- Gabriele Spadaro, Alberto Presta, **Jhony H. Giraldo**, Attilio Fiandrotti, Marco Grangetto, Enzo Tartaglione “*CALICE: Continuous bitrate control with Adapted LIC modEl*”, ACM Transactions on Multimedia Computing Communications and Applications, 2026.
- Julian Santamaria, Claudia Isaza, **Jhony H. Giraldo** “*WildIng: A Wildlife Image Invariant Representation Model for Geographical Domain Shift*”, International Journal of Computer Vision, 2026.
- Vahan Martirosyan, **Jhony H. Giraldo**, and Fragkiskos D. Malliaros. “*Piecewise Constant Spectral Graph Neural Network*”, Transactions on Machine Learning Research, 2025.
- Amadou Siaka Sangare, Nicolas Dunou, **Jhony H. Giraldo**, and Fragkiskos D. Malliaros. “*A Fused Gromov-Wasserstein Approach to Subgraph Contrastive Learning*”, Transactions on Machine Learning Research, 2025.
- Jhon A. Castro-Correa, Mohsen Badiy, **Jhony H. Giraldo**, Fragkiskos D. Malliaros. “*Semi-Supervised Graph Learning for Underwater Source Localization Using Ship-of-Opportunity Spectrograms*”, The Journal of the Acoustical Society of America, 2025.
- Meghna Kapoor, Wieke Prummel, **Jhony H. Giraldo**, Badri Narayan Subudhi, Anastasia Zakharova, Thierry Bouwmans, Ankur Bansal. “*Graph-based Moving Object Segmentation for Underwater Videos Using Semi-supervised Learning*”, Computer Vision and Image Understanding, 2025.
- Gabriele Spadaro, Andrea Bragagnolo, Riccardo Renzulli, Marco Grangetto, **Jhony H. Giraldo**, Attilio Fiandrotti, Enzo Tartaglione “*TEP-ones: A Simple yet Effective Approach for Transferability Estimation of Pruned Backbones*”, Neurocomputing, 2025.
- Jhon A. Castro-Correa, **Jhony H. Giraldo**, Mohsen Badiy, Fragkiskos D. Malliaros. “*Gegenbauer Graph Neural Networks for Time-varying Signal Reconstruction*”, IEEE Transactions on Neural Networks and Learning Systems, 2024.
- **Jhony H. Giraldo**, Aref Einizade, Andjela Todorovic, Jhon A. Castro-Correa, Mohsen Badiy, Thierry Bouwmans, Fragkiskos D. Malliaros. “*Higher-Order GNNs Meet Efficiency: Sparse Sobolev Graph Neural Networks*”, IEEE Transactions on Signal and Information Processing over Networks, 2024.
- Aref Einizade, **Jhony H. Giraldo**, Fragkiskos D. Malliaros, Sepideh Hajipour Sardouie. “*Estimation of a Causal Directed Acyclic Graph Process using Non-Gaussianity*”, Digital Signal Processing, 2024.
- Nestor Rendon, **Jhony H. Giraldo**, Thierry Bouwmans, Susana Rodríguez-Buritica, Edison Ramirez, Claudia Isaza, “*Uncertainty Clustering Internal Validity Assessment using Fréchet Distance for Unsupervised Learning*”, Engineering Applications of Artificial Intelligence, 2023.
- **Jhony H. Giraldo**, Arif Mahmood, Belmar Garcia-Garcia, Dorina Thanou, Thierry Bouwmans, “*Reconstruction of Time-varying Graph Signals via Sobolev Smoothness*”, IEEE Transactions on Signal and Information Processing over Networks, 2022.
- Marwa Chendeb El Rai, **Jhony H. Giraldo**, Mina Al-Saad, Muna Darweech, Thierry Bouwmans, “*SemiSeg-SAR: A Semi-supervised Segmentation Algorithm for Ship SAR Images*”, IEEE Geoscience and Remote Sensing Letters, 2022.
- **Jhony H. Giraldo**, Sajid Javed, Thierry Bouwmans, “*Graph Moving Object Segmentation*”, IEEE Transactions on Pattern Analysis and Machine Intelligence, 2020.
- Alejandro Parada-Mayorga, Daniel L. Lau, **Jhony H. Giraldo**, Gonzalo R. Arce, “*Blue-Noise Sampling on Graphs*”, IEEE Transactions on Signal and Information Processing over Networks, 2019.
- **Jhony H. Giraldo**, Augusto Salazar, Alexander Gomez, Angélica Diaz-Pulido, “*Camera-trap Images Segmentation using Multi-layer Robust Principal Component Analysis*”, The Visual Computer, 2019.

- **Jhony H. Giraldo**, Augusto Salazar, German Diez, Alexander Gomez, Tatiana Martinez, Jesús F. Vargas Bonilla, Mariana P. Vasquez, “*Automatic Identification of Scenedesmus Polymorphic Microalgae from Microscopic Images*”, Pattern Analysis and Applications, 2018.

Top-Tier Conference Papers

- Dorian Gailhard, Enzo Tartaglione, Lirida Naviner, **Jhony H. Giraldo**, “*Feature-Aware (Hyper)graph Generation via Next-Scale Prediction*”, International Conference on Machine Learning (2026).
- Zepeng Zhang, Aref Einizade, **Jhony H. Giraldo**, Olga Fink, “*Spatiotemporal Imputation with Graph-Informed Flow Matching*”, International Conference on Machine Learning (2026).
- Vahan A. Martirosyan, Daniele Malitesta, Hugues Talbot, **Jhony H. Giraldo**, Fragkiskos D. Malliaros, “*Generalization Bounds for Spectral GNNs via Fourier Domain Analysis*”, International Conference on Artificial Intelligence and Statistics (2026).
- Aref Einizade, Dorina Thanou, Fragkiskos D. Malliaros, **Jhony H. Giraldo**, “*Continuous Simplicial Neural Networks*”, Advances in Neural Information Processing Systems (2025).
- Dorian Gailhard, Enzo Tartaglione, Lirida Naviner, **Jhony H. Giraldo**, “*HYGENE: A Diffusion-based Hypergraph Generation Method*”, AAAI Conference on Artificial Intelligence (2025).
- Aref Einizade, Fragkiskos D. Malliaros, **Jhony H. Giraldo**, “*Continuous Product Graph Neural Networks*”, Advances in Neural Information Processing Systems (2024).
- Hamza Rami, **Jhony H. Giraldo**, Nicolas Winckler, Stéphane Lathuilière, “*Privacy-Preserving Adaptive Re-Identification without Image Transfer*”, European Conference on Computer Vision (2024). (**Oral Presentation**)

Other International Conference and Proceedings Papers

- Maria J. Guerrero, Aref Einizade, **Jhony H. Giraldo**, César A. Uribe, “*Consistent Soundscape Connectomes via Stability-Refined Graph Learning*”, International Joint Conference on Neural Networks (2026).
- Sebastian Rojas-Ortega, Mohsen Badiy, **Jhony H. Giraldo**, Fragkiskos D. Malliaros, Jhon A. Castro-Correa, Christian D. Escobar-Amado “*Physics-Guided Machine Learning for Acoustic Mode Reconstruction in the Seabed Characterization Experiments*”, Proceedings of Meetings on Acoustics (2026).
- Shifeng Xie, Aref Einizade, **Jhony H. Giraldo**, “*Subgraph Gaussian Embedding Contrast for Self-Supervised Graph Representation Learning*”, European Conference on Machine Learning and Knowledge Discovery in Databases (2025).
- Gabriele Spadaro, Alberto Presta, **Jhony H. Giraldo**, Marco Grangetto, Wei Hu, Giuseppe Valenzise, Attilio Fiandrotti, Enzo Tartaglione, “*Denoising Diffusion Probabilistic Model for Point Cloud Compression at Low Bit-Rates*”, IEEE International Conference on Multimedia and Expo (2025). (**Oral Presentation**).
- Julian Santamaria, Claudia Isaza, **Jhony H. Giraldo**, “*CATALOG: A Camera Trap Language-guided Contrastive Learning Model*”, IEEE/CVF Winter Conference on Applications of Computer Vision (2025). (**Oral Presentation**).
- Gabriele Spadaro, Marco Grangetto, Attilio Fiandrotti, Enzo Tartaglione, **Jhony H. Giraldo**, “*WiGNet: Windowed Vision Graph Neural Network*”, IEEE/CVF Winter Conference on Applications of Computer Vision (2025). (**Oral Presentation**).
- Hamza Rami, **Jhony H. Giraldo**, Nicolas Winckler, Stéphane Lathuilière, “*Source-Guided Similarity Preservation for Online Person Re-Identification*”, IEEE/CVF Winter Conference on Applications of Computer Vision (2024).
- Muhammad Rameez Ur Rahman, **Jhony H. Giraldo**, Indro Spinelli, Stéphane Lathuilière, Fabio Galasso, “*OVOSE: Open-Vocabulary Semantic Segmentation in Event-Based Cameras*”, International Conference on Pattern Recognition (2024).

- Gabriele Spadaro, Alberto Presta, Enzo Tartaglione, **Jhony H. Giraldo**, Marco Grangetto, Attilio Fian-drotti, “*GABIC: Graph-based Attention Block for Image Compression*”, IEEE International Conference on Image Processing (2024). (**Oral Presentation**)
- Gabriele Spadaro, Muhammad Salman Ali, Alberto Presta, Giommaria Pilo, Sung-Ho Bae, **Jhony H. Gi-raldo**, Attilio Fian-drotti, Marco Grangetto, Enzo Tartaglione, “*ALICE: Adapt your Learnable Image Com-pression model for variable bitrates*”, IEEE International Conference on Visual Communications and Image Processing (2024).
- Zied Mnasri, **Jhony H. Giraldo**, Thierry Bouwmans, “*Anomalous Sound Detection for Road Surveillance based on Graph Signal Processing*”, European Conference on Signal Processing (2024).
- **Jhony H. Giraldo**, Konstantinos Skianis, Thierry Bouwmans, Fragkiskos Malliaros “*On the Trade-off between Over-smoothing and Over-squashing in Deep Graph Neural Networks*”, ACM Conference on Infor-mation and Knowledge Management (2023). (**Oral Presentation**)
- Wieke Prummel, **Jhony H. Giraldo**, Anastasia Zakharova, Thierry Bouwmans “*Inductive Graph Neural Networks for Moving Object Segmentation*”, IEEE International Conference on Image Processing (2023).
- **Jhony H. Giraldo**, Sajid Javed, Arif Mahmood, Fragkiskos D. Malliaros, Thierry Bouwmans, “*Higher-order Sparse Convolutions in Graph Neural Networks*”, IEEE International Conference on Acoustics, Speech, and Signal Processing (2023).
- Jhon A. Castro-Correa, **Jhony H. Giraldo**, Anindya Mondal, Mohsen Badiy, Thierry Bouwmans, Fragkiskos D. Malliaros, “*Time-varying Signals Recovery via Graph Neural Networks*”, IEEE International Conference on Acoustics, Speech, and Signal Processing (2023).
- **Jhony H. Giraldo**, Vincenzo Scarrica, Antonino Staiano, Francesco Camastra, Thierry Bouwmans, “*Hypergraph Convolutional Networks for Weakly-Supervised Semantic Segmentation*”, IEEE International Con-ference on Image Processing (2022). (**Oral Presentation**)
- **Jhony H. Giraldo**, Thierry Bouwmans. “*GraphBGS: Background Subtraction via Recovery of Graph Sig-nals*”, International Conference on Pattern Recognition (2021).
- **Jhony H. Giraldo**, Thierry Bouwmans, “*Semi-supervised Background Subtraction of Unseen Videos: Min-imization of the Total Variation of Graph Signals*”, IEEE International Conference on Image Processing (2020).
- Alejandro Parada-Mayorga, Daniel L. Lau, **Jhony H. Giraldo**, Gonzalo R. Arce, “*Blue-Noise Sampling of Signals on Graphs*”, International Conference on Sampling Theory and Applications (2019).
- **Jhony H. Giraldo**, Augusto Salazar, Alexander Gomez, Angélica Diaz-Pulido, “*Recognition of Mammal Genera on Camera-trap Images using Multi-layer Robust Principal Component Analysis and Mixture Neural Networks*”, IEEE International Conference on Tools with Artificial Intelligence (2017).

Workshop Papers

- Aref Einizade, Fragkiskos D. Malliaros, **Jhony H. Giraldo**, “*Second-Order Tensorial Partial Differential Equations on Graphs*”, NeurIPS Workshop: New Perspectives in Advancing Graph Machine Learning (2025).
- Lucas li, Jean-Baptiste Puel, Florence Carton, Dounya Barrit, **Jhony H. Giraldo**, “*Solar-GECCO: Perovskite Solar Cell Property Prediction with Geometric-Aware Co-Attention*”, NeurIPS Workshop: AI for Accelerated Materials Design (2025).
- Maria J. Guerrero, Aref Einizade, **Jhony H. Giraldo**, Victor M. Martinez-Arias, Claudia Isaza, Cesar A. Uribe, “*Soundscape Connectomes: Unsupervised Graph-Based Approach for Soundscape Mapping*”, NeurIPS Workshop: AI for Non-human Animal Communication (2025).
- Shifeng Xie, **Jhony H. Giraldo**, “*Variational Graph Contrastive Learning*”, NeurIPS Workshop: Self-Supervised Learning - Theory and Practice (2024).

- Nicola Corbellini, **Jhony H. Giraldo**, Giovanna Varni, Gualtiero Volpe “*Few Labels are Enough! Semi-supervised Graph Learning for Social Interaction*”, IEEE/CVF International Conference on Computer Vision - Workshops (2023). (**Best Paper Award Artificial Social Intelligence Workshop**)
- Gabriele Spadaro, Riccardo Renzulli, Andrea Bragagnolo, **Jhony H. Giraldo**, Attilio Fiandrotti, Marco Grangetto, Enzo Tartaglione, “*Shannon Strikes Again! Entropy-based Pruning in Deep Neural Networks for Transfer Learning under Extreme Memory and Computation Budgets*”, IEEE/CVF International Conference on Computer Vision - Workshops (2023).
- **Jhony H. Giraldo**, Sajid Javed, Naoufel Werghi, Thierry Bouwmans. “*Graph CNN for Moving Object Detection in Complex Environments from Unseen Videos*”, IEEE/CVF International Conference on Computer Vision - Workshops (2021).
- Anindya Mondal, Shashant R., **Jhony H. Giraldo**, Thierry Bouwmans, Ananda S Chowdhury. “*Moving Object Detection for Event-based Vision using Graph Spectral Clustering*”, IEEE/CVF International Conference on Computer Vision - Workshops (2021).
- **Jhony H. Giraldo**, Sajid Javed, Maryam Sultana, Soon Ki Jung, Thierry Bouwmans. “*The Emerging Field of Graph Signal Processing for Moving Object Segmentation*”, International Workshop on Frontiers of Computer Vision (2021).
- Maryam Sultana, Thierry Bouwmans, **Jhony H. Giraldo**, Soon Ki Jung. “*Robust Foreground Segmentation in RGBD Data from Complex Scenes using Adversarial Networks*”, International Workshop on Frontiers of Computer Vision (2021).
- **Jhony H. Giraldo**, Thierry Bouwmans, “*On the Minimization of Sobolev Norms of Time-Varying Graph Signals: Estimation of New Coronavirus Disease 2019 Cases*”, IEEE International Workshop on Machine Learning for Signal Processing (2020).
- Alejandro Parada-Mayorga, Daniel L. Lau, **Jhony H. Giraldo**, Gonzalo R. Arce, “*Sampling of Graph Signals with Blue Noise Dithering*”, IEEE Data Science Workshop (2019).
- Alexander Gomez, German Diez, **Jhony H. Giraldo**, Augusto Salazar, Juan M. Daza, “*A Markov Random Field and Active Contour Image Segmentation Model for Animal Spots Patterns*”, International Symposium on Visual Computing (2015).

Full List of Patent Applications

- Hamza Rami, Nicolas Winckler, **Jhony H. Giraldo**, Stéphane Lathuilière, “*Method for Performing Privacy-preserving Federated Learning in the Framework of Re-identification*”, U.S. Patent Application No. 19/066,561 (2025). (**Collaboration with the Company Atos**).
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- Hamza Rami, Nicolas Winckler, **Jhony H. Giraldo**, Stéphane Lathuilière, “*Method, Device, and Computer Program for Adapting an ANN Model for Person Re-identification on a Target Domain*”, U.S. Patent Application No. 18/587,155 (2024). (**Collaboration with the Company Atos**).
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- Machine Learning with Graphs, Institut Polytechnique de Paris. January 2025 - Present
Content: Introduction to Machine Learning with Graphs, Graph Neural Networks, Scaling-up Graph Neural Networks, Recommender Systems, Spatiotemporal Analysis, and Graph Generation.
- Statistical Learning and Data Mining, Télécom Paris. Dec 2024 - Present
Content: Introduction to Graph Mining.
- Deep Learning for Computer Vision, Institut Polytechnique de Paris. Nov 2023 - Present
Content: Point Clouds and Graph Neural Networks.
- Signal Representation, Télécom Paris. Oct 2023 - Present
Content: Wavelets.
- Advanced Machine Learning, Télécom Paris. Mar 2023 - Present
Content: Graph Neural Networks.
- Machine Learning with Graphs, Artificial Intelligence Summer School, CentraleSupélec. July 2024
Content: Introduction to Graph Neural Networks.
- Lab Introduction to Deep Learning, Télécom Paris. Mar 2023
Content: Convolutional Neural Networks.
- Lab Machine Learning, Télécom Paris. Mar 2023
Content: Decision Trees, Neural Networks, Support Vector Machines.
- Lab Introduction to Computer Vision, Télécom Paris. Dec 2022
Content: Sampling Theory, Filtering, Restoration, Mathematical Morphology, Segmentation, Feature Detection, Motion Estimation.