Curriculum Vitae for Jhony H. Giraldo

Assistant Professor in Machine Learning and Computer Vision

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Research Profile

My research focuses on **geometric deep learning** for relational data such as graphs and higher-order structures (hypergraphs, simplicial, and cell complexes). I work on higher-order graph neural networks, generative models for graphs and hypergraphs, methods for spatiotemporal **signal processing on graphs**, and **computer vision**. I have published over **40 peer-reviewed papers** at top-level venues in my domains of expertise, including NeurIPS, AAAI, ECCV, TMLR, IEEE (TPAMI, TNNLS, TSIPN, ICASSP), ACM CIKM, WACV, and others. According to Google Scholar, my work has been cited over 990 times with an h-index of 17 as of November 2025.

I have established an independent research program with over €555k in PI funding (ANR, Hi! Paris, TotalEnergies, NVIDIA), and contributed as a team member to an additional €531k ANR project. I contribute actively to the community as a program committee member, journal reviewer, and area chair (ICLR, JMLR, CVPR, ICCV, ECCV, IEEE TPAMI, IEEE TSP, among others), and as organizer of international workshops. I also collaborate with industry partners such as TotalEnergies and have over **7 international patents** or applications. I am also a member of the ELLIS Society (European AI network of excellence) and the IEEE Signal Processing Society.

Grants and Funding Sources

- Agence Nationale de la Recherche (ANR) Project DeSNAP *"Deep Simplicial Neural Networks for Advanced Geometry Processing"*. **Role**: PI. € 337,862. 2025 - 2029.
- Hi! Paris Half PhD Fellowship (Antoine Vialle) *"Deep Simplicial Neural Networks for Advanced Geometry Processing"*. **Role**: PI. € 78,000. 2025 - 2028.
- 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.
- Agence Nationale de la Recherche (ANR) Project SODA *"System On Chip Design Leveraging Artificial Intelligence"*. **Role**: Team Member. € 531,000. 2023 - 2027.
- Hi! Paris Postdoc Fellowship (Aref Einizade) *"Learning Multi-domain Graphs from Data via Graph Machine Learning: Theoretical Analysis and Applications"*. **Role**: PI. € 120,000. 2023 - 2025.

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

Machine Learning:

- Aref Einizade, Dorina Thanou, Fragkiskos D. Malliaros, **Jhony H. Giraldo**, "*Continuous Simplicial Neural Networks*", NeurIPS (2025). (**Accepted**) (**Project Co-Lead with FM**).
- Dorian Gailhard, Enzo Tartaglione, Lirida Naviner, **Jhony H. Giraldo**, "*HYGENE: A Diffusion-based Hypergraph Generation Method*", AAAI (2025). (**Project Lead**).
- Aref Einizade, Fragkiskos D. Malliaros, **Jhony H. Giraldo**, "*Continuous Product Graph Neural Networks*", NeurIPS (2024). (**Project Co-Lead with FM**).
- **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 CIKM (2023). (**Oral**)

Computer Vision:

- Gabriele Spadaro, Marco Grangetto, Attilio Fiandrotti, Enzo Tartaglione, **Jhony H. Giraldo**, "*WiGNet: Windowed Vision Graph Neural Network*", IEEE/CVF WACV (2025). (**Oral**) (**Project Lead**).

- Julian Santamaria, Claudia Isaza, **Jhony H. Giraldo**, "*CATALOG: A Camera Trap Language-guided Contrastive Learning Model*", IEEE/CVF WACV (2025). (**Oral**) (**Project Lead**).
- Hamza Rami, **Jhony H. Giraldo**, Nicolas Winckler, Stéphane Lathuilière, "*Privacy-Preserving Adaptive Re-Identification without Image Transfer*", ECCV (2024). (**Oral**)
- **Jhony H. Giraldo**, Sajid Javed, Thierry Bouwmans, *"Graph Moving Object Segmentation"*, IEEE Transactions on Pattern Analysis and Machine Intelligence, 44(5), pp. 2485-2503, 2020.

Signal Processing:

- **Jhony H. Giraldo**, Aref Einizade, Andjela Todorovic, Jhon A. Castro-Correa, Mohsen Badiey, 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.
- **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, 8, pp. 201-214, 2022.

Academic Appointments

Assistant Professor in Machine Learning and Computer Vision (Permanent) — Oct 2022 - Present
Télécom Paris, Institut Polytechnique de Paris, Palaiseau, France

- Visiting Professor at EPFL, LTS4 laboratory, Switzerland — Oct 2024 - Nov 2024

Research Assistant in Graph Signal Processing — Sep 2018 - Aug 2019
University of Delaware, Newark, DE, USA

Education

Doctor of Philosophy in Applied Mathematics — Oct 2019 - Sep 2022
La Rochelle Université, La Rochelle, France

- 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) — Aug 2016 - Aug 2018
Universidad de Antioquia, Medellin, Colombia

- 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 — Feb 2011 - Mar 2016
Universidad de Antioquia, Medellin, Colombia

- Teaching Assistant at Universidad de Antioquia, Colombia — Feb 2014 - Nov 2015

Selected Patents (see complete list in Appendix, page 9)

- 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 (2024). (**Collaboration with the Company Sisvel**).

Supervising Activities

Postdoctoral Researchers

- Dr. Aref Einizade (2023 - Present).

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

- Antoine Vialle (2025), Kian Bakhtari (2025), Julian Santamaria (2025), Vahan Martirosyan (2023), Nicolas Dunou (2023), Nacereddine Laddaoui (2023).

Master's Students

- 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

- 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 2025 - 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 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 9)

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

Awards and Honors

- **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 Genera on 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.
- 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.
- Senior 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: 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, Neural Networks, Computer Vision and Image Understanding, IEEE Sensors Journal, Information Sciences, Neurocomputing, 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: The Next Frontier in Relational Learning: Higher-order Neural Networks"*, Presented in November 2025 at the LTCI Research Day, Palaiseau, France.
- *"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: A Journey Through Graphs for Spatiotemporal Analysis"*, Presented in October 2024 at the DEGAS Webinar Series 2024, as a part of the IEEE SPS Data Science Initiative, virtually.
- *"Keynote: A Journey Through Graphs for Spatiotemporal Analysis"*, Presented in September 2024 at the MATHIAS Days International Conference by TotalEnergies R&D 2024, in Magny-le-Hongre, France
- *"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) CentraleSupélec, 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) 2025 - Present
- IEEE Signal Processing Society 2025 - Present

Small Grants

- Consulting for the project *"Perovskite Solar Cell Property Prediction with Geometric Graph Neural Networks"*, TotalEnergies One Tech. € 8,700.
- 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.
- Stipend for *"Summer Research Program at University of Delaware"*, 2018. $ 3,000.

Computer Skills

Programming Languages
Python, Matlab, C/C++.

Relevant Libraries
PyTorch, PyG (PyTorch Geometric), OpenCV, LaTeX.

Languages

Spanish: Native Language.
English: C1. TOEFL: 93/120 (2018), C1. IELTS: 7.5/9 (2022), Full Professional Proficiency.
French: B2. Professional Working Proficiency.

Additional Information of Curriculum Vitae

Full List of Publications

Journal Papers

- Jhon A. Castro-Correa, Mohsen Badiey, **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.
- Vahan Martirosyan, **Jhony H. Giraldo**, and Fragkiskos D. Malliaros. "*Piecewise Constant Spectral Graph Neural Network*", Transactions on Machine Learning Research, 2025. (**Project Co-Lead with FM**)
- 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. (**Project Co-Lead with FM**)
- 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.
- **Jhony H. Giraldo**, Aref Einizade, Andjela Todorovic, Jhon A. Castro-Correa, Mohsen Badiey, 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.
- Jhon A. Castro-Correa, **Jhony H. Giraldo**, Mohsen Badiey, Fragkiskos D. Malliaros. *"Gegenbauer Graph Neural Networks for Time-varying Signal Reconstruction"*, IEEE Transactions on Neural Networks and Learning Systems, 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, 8, pp. 201-214, 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, 19, pp. 1-5, 2022.
- **Jhony H. Giraldo**, Sajid Javed, Thierry Bouwmans, *"Graph Moving Object Segmentation"*, IEEE Transactions on Pattern Analysis and Machine Intelligence, 44(5), pp. 2485-2503, 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 5(3), pp. 554-569 (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 35(3), pp. 335-347 (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 21(2), pp. 601-612 (2018).

Rank A* Conference Papers

- Aref Einizade, Dorina Thanou, Fragkiskos D. Malliaros, **Jhony H. Giraldo**, "*Continuous Simplicial Neural Networks*", Advances in Neural Information Processing Systems (2025). (**Accepted**) (**Project Co-Lead with FM**).
- Dorian Gailhard, Enzo Tartaglione, Lirida Naviner, **Jhony H. Giraldo**, "*HYGENE: A Diffusion-based Hypergraph Generation Method*", AAAI Conference on Artificial Intelligence (2025). (**Project Lead**).
- Aref Einizade, Fragkiskos D. Malliaros, **Jhony H. Giraldo**, "*Continuous Product Graph Neural Networks*", Advances in Neural Information Processing Systems (2024). (**Project Co-Lead with FM**).
- 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**)

Rank A Conference Papers

- 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). (**Project Lead**).
- 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). (**Accepted**) (**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**) (**Project Lead**).
- 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**) (**Project Lead**).
- 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).
- **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 Information and Knowledge Management (2023). (**Oral Presentation**)

Other Conference and 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). (**Accepted**) (**Project Co-Lead with FM**).
- Lucas li, Jean-Baptiste Puel, Florence Carton, Dounya Barrit, **Jhony H. Giraldo**, "*Solar-GECO: Perovskite Solar Cell Property Prediction with Geometric-Aware Co-Attention*", NeurIPS Workshop: AI for Accelerated Materials Design (2025). (**Accepted**) (**Project Co-Lead**).
- 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). (**Accepted**).
- Shifeng Xie, **Jhony H. Giraldo**, "*Variational Graph Contrastive Learning*", NeurIPS Workshop: Self-Supervised Learning - Theory and Practice (2024). (**Project Lead**).

- 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 Fiandrotti, "*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. Giraldo**, Attilio Fiandrotti, Marco Grangetto, Enzo Tartaglione, "*ALICE: Adapt your Learnable Image Compression 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).
- 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).
- 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 Badiey, 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 Conference on Image Processing (2022). (**Oral Presentation**)
- **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**, Thierry Bouwmans. *"GraphBGS: Background Subtraction via Recovery of Graph Signals"*, International Conference on Pattern Recognition (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, *"Semi-supervised Background Subtraction of Unseen Videos: Minimization of the Total Variation of Graph Signals"*, IEEE International Conference on Image Processing (2020).
- **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, *"Blue-Noise Sampling of Signals on Graphs"*, International Conference on Sampling Theory and Applications (2019).
- 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).
- **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).
- 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 Patents

- 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**).
- Gabriele Spadaro, Alberto Presta, Enzo Tartaglione, **Jhony H. Giraldo**, Attilio Fiandrotti, Marco Grangetto, "*Computer-implemented Method for Training a Learned Image Compression Model using Modular Adapters with Dynamic Control over a Rate–distortion Tradeoff and Related Autoencoder, Encoder and Decoder*", Italian Patent (2025). (**Collaboration with the Company Sisvel**).
- Gabriele Spadaro, Enzo Tartaglione, **Jhony H. Giraldo**, Attilio Fiandrotti, Marco Grangetto, Riccardo Renzulli, Adrea Bragagnolo, "*Computer-implemented Method for Estimating the Transferability of Pruned Neural Network Models, in Particular Pruned Backbones, for a Downstream Task*", Italian Patent (2025). (**Collaboration with the Company Sisvel**).
- 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 (2024). (**Collaboration with the Company Sisvel**).
- Gabriele Spadaro, Attilio Fiandrotti, Marco Grangetto, Alberto Presta, Enzo Tartaglione, **Jhony H. Giraldo**, "*Method for Enhanced Image Encoding and Decoding using a Graph-based Attention Block, and Related Encoder and Decoder*", Italian Patent (2024). (**Collaboration with the Company Sisvel**).
- Gabriele Spadaro, Alberto Presta, **Jhony H. Giraldo**, Enzo Tartaglione, Muhammad Salman Ali, Attilio Fiandrotti, Marco Grangetto, "*Autoencoder and Method for Adaptive Learned Image Compression with Configurable Encoder and Decoder for Variable Bitrate Applications*", Italian Patent (2024). (**Collaboration with the Company Sisvel**).

Full List of Teaching

- 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.