

PERSONAL INFORMATION

Family name, First name:

Franchi, Gianni

Date of birth: 19/04/1988

Nationality: french

URL for web site:

<https://www.ensta-paris.fr/fr/gianni-franchi>



EDUCATION

- 2013-2016 PhD. in Image Processing (Mathematical Morphology) and Spatial Machine Learning
MINES ParisTech, PSL-Research University, France
Title: "Spatial machine learning applied to multivariate and multimodal images"
PhD Director: Jesus Angulo
- 2010-2013 Ecole Centrale Marseille, Marseilles, France
Name of Faculty/ Department, Name of University/ Institution, Country
Final year courses: Information Science and Technology - GPA: 3.88/4
- 2012-2013 Université Paul Cézanne (Aix-Marseille III), Marseilles, France
Name of Faculty/ Department, Name of University/ Institution, Country
Optics, Photonics, Signal, and Image, majoring in Signal and Image - graduated with honors.

CURRENT POSITION(S)

- 2020 –now Assistant Professor
ENSTA Paris / Institut Polytechnique de Paris/ U2IS/ France

PREVIOUS POSITIONS

- 01/2019 – 02/2020 Postdoc Paris-Sud University
Paris-Sud University/SATIE/ Paris-Saclay University/ France
Supervisor: Emanuel Aldea, Isabelle Bloch, Severine Dubuisson \
- 09/2018 – 09/2018 Deep Learning Engineer
Safrantech/ Safran/ France
- 01/2018 – 08/2018 Research Scientist
CEAtech/ CEA/ France
- 01/2018 – 08/2018 Postdoc Siegen University
Siegen University / Institute for Vision and Graphics /Germany
Supervisor: Prof. Andreas Kolb
- 08/2015- 11/2015 3 months Academic Exchange during the PhD.
Oxford University, United Kingdom
Supervisor : Dino Sejdinovic

FELLOWSHIPS AND AWARDS

None

SUPERVISION OF GRADUATE STUDENTS AND POSTDOCTORAL FELLOWS

2019 – 2023 15 Master Students
ENSTA Paris / Institut Polytechnique de Paris/ U2IS/ France

PhD students :

2022 – 2025, Rémi Kazmierczak, co-advised with Eloïse Berthier (10%), Goran Frehse (20%), me (70%) ,
topic : XAI and foundation models
2022 – 2025, Olivier Laurent, co-advised with Adrien Chan Hon Tong (34%), Emanuel Aldea (33%), me
(33%) , topic : Uncertainty and Deep Learning
2022 – 2025, Adrien Lafage, co-advised with Mathieu Barbier (50%), David FILLIAT (10%), me (40%) ,
topic : Uncertainty and trajectory forecasting
2022 – 2025, Mouïñ Ben Ammar, co-advised with Nacim Belkhir (50%) , Antoine Manzanera (25%), me
(25%) , topic : Anomaly detection

PhD students Alumni

2020 – 2023, Xuanlong Yu, co-advised with Emanuel Aldea (50%), me (50%) , topic : Uncertainty and
Deep Learning

Postdocs:

2022 – 2024 Antoine Guillaume , topic : Anomaly detection and time series
2023 – 2023 Sébastien Popescu, topic : Uncertainty and Anomaly detection
2023 – 2023 Louis Annabi, topic : Domain Adaptation

· TEACHING ACTIVITIES

2013 – 2016 Teaching position (36h) – Image processing, PSL University/ Mines de Paris/ France
2018 – 2019 Teaching position (34h)– C++, Deep learning course, Paris-Saclay University/ SATIE/ France
2019 – 2020 Teaching position (40h)– Computer vision + Image processing, Institut Polytechnique de
Paris/ ENSTA Paris
2020 – 2021 Teaching position (150h)– Computer vision + Image processing + Machine learning, Institut
Polytechnique de Paris/ ENSTA Paris
2021 – 2022 Teaching position (207h)– Computer vision + Image processing + Machine learning, Institut
Polytechnique de Paris/ ENSTA Paris
2022 – 2023 Teaching position (207h)– Computer vision + Image processing + Machine learning, Institut
Polytechnique de Paris/ ENSTA Paris

· ORGANISATION OF SCIENTIFIC MEETINGS

2023 Organisation of a tutorial at WACV 2023 on Uncertainty and Deep Learning.
2023 Organisation of a Workshop at ICCV 2023 on Uncertainty and Deep Learning. I was chair of
the workshop and program chair.
2023 Organisation of a challenge at ICCV 2023 on Uncertainty and Deep Learning.

· INSTITUTIONAL RESPONSIBILITIES

2021 – 2022 In charge of the GPU cluster at ENSTA.

2021 – 2024 Co Responsible of the Master Intelligence Artificiel of ENSTA Paris and Télécom Paris

· REVIEWING ACTIVITIES

2020 –2022 Reviewer: CVPR, ICCV, ECCV, ICASSP, IJCAI, ICRA, Pattern Recognition

2022 –2023 Reviewer: CVPR, ICCV, NIPS, TPAMI, UNCV, AAAI Chair at UNCV

2022 –2023 Chair and program chair: UNCV

2022 –2023 Program Committee: AAAI

2023 –2024 Chair : ACCV

· MEMBERSHIPS OF SCIENTIFIC SOCIETIES

CVF member

SSFAM (Société Savante Francophone d'Apprentissage Machine)

Elected member of the Jean Zay Users' Council

· CAREER BREAKS (if applicable)

None

A. Track-record

Journal contributions

1. G. Franchi, A. Bursuc, E. Aldea, S. Dubuisson, & I. Bloch, (2023). "Encoding the latent posterior of Bayesian Neural Networks for uncertainty quantification". Accepted in IEEE Transactions on Pattern Analysis and Machine Intelligence.
2. A. Bennetot, G. Franchi, J. Del Ser, R. Chatila, & N. Diaz-Rodriguez, (2022). "Greybox XAI: A Neural-Symbolic learning framework to produce interpretable predictions for image classification". Accepted in Knowledge-Based Systems, 258, 109947.
3. G. Franchi, A. Bursuc, E. Aldea, S. Dubuisson, & I. Bloch (2021). "One Versus all for deep Neural Network for uncertainty (OVNNI) quantification". Accepted in IEEE Access, 10, 7300-7312.
4. Y. Hu, N. Belkhir, J. Angulo, A. Yao, and G. Franchi, (2021). "Learning Deep Morphological Networks with Neural Architecture Search" Accepted in Pattern Recognition (2021)
5. N. Diaz-Rodriguez, A. Lamas, J. Sanchez, G. Franchi, I. Donadello, S. Tabik, D. Filliat, P. Cruz, R. Montes, and F. Herrera. "EXplainable Neural-Symbolic Learning (X-NeSyL) methodology to fuse deep learning representations with expert knowledge graphs: the MonuMAI cultural heritage use case". Accepted in Information Fusion (2021)
6. G. Franchi, A. Fehri, A. Yao. "Deep morphological networks". Accepted in Pattern Recognition 102 (2020):107246.
7. G. Franchi, J. Angulo, M. Moreaud, & L. Sorbier, (2018). "Enhanced EDX images by fusion of multimodal SEM images using pansharpening techniques". Accepted in Journal of microscopy, 269(1), 94-112.
8. G. Franchi, J. Angulo. "Morphological Principal Component Analysis for Hyperspectral Image Analysis". Accepted in ISPRS Int. J. Geo-Inf. 2016, 5, 83.

Conference contributions

1. O. Laurent, E. Aldea, & G. Franchi. "A Symmetry-Aware Exploration of Bayesian Neural Network Posteriors". Accepted in International Conference on Learning Representations (ICLR2024)
2. M. Ben Ammar, N. Belkhir, S. Popescu, A. Manzanera, & G. Franchi. "NECO: NEural Collapse Based Out-of-distribution detection". Accepted in International Conference on Learning Representations (ICLR2024)

3. K. Xu, R. Chen, G. Franchi, & A. Yao, (2023). "Scaling for Training Time and Post-hoc Out-of-distribution Detection Enhancement." Accepted in International Conference on Learning Representations (ICLR2024)
4. X. Yu, G. Franchi, J. Gu, & E. Aldea, (2023). "Discretization-Induced Dirichlet Posterior for Robust Uncertainty Quantification on Regression" Accepted in Association for the Advancement of Artificial Intelligence (AAAI 2024)
5. G. Franchi, M. Hariat, X. Yu, N. Belkhir, A. Manzanera, & D. Filliat, (2024). "InfraParis: A multi-modal and multi-task autonomous driving dataset." Accepted in Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision (WACV 2024)
6. M. Hariat, O. Laurent, R. Kazmierczak, S Zhang., A. Bursuc, A. Yao, & G. Franchi, (2024). "Learning to generate training datasets for robust semantic segmentation." Accepted in Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision (WACV 2024)
7. Yu, X, et al. "The Robust Semantic Segmentation UNCV2023 Challenge Results." Proceedings of the IEEE/CVF International Conference on Computer Vision Workshop. 2023. (ICCV Workshop 2023)
8. O. Laurent, A. Lafage, E. Tartaglione, G. Daniel, J. M. Martinez, A. Bursuc, & G. Franchi, "Packed-Ensembles for Efficient Uncertainty Estimation." Accepted in International Conference on Learning Representations (ICLR2023)
9. G Franchi, X Yu, A. Bursuc, E. Aldea, S. Dubuisson, and D Filliat "Latent Discriminant deterministic Uncertainty" Accepted in 17th European Conference on Computer Vision (ECCV 2022).
10. G Franchi, X Yu, A. Bursuc, A. Tena, R. Kazmierczak, S. Dubuisson, E. Aldea, and D Filliat (2022). "MUAD: Multiple Uncertainties for Autonomous Driving, a benchmark for multiple uncertainty types and tasks." Accepted in British Machine Vision Conference (BMVC 2022).
11. X Yu, G. Franchi, and E. Aldea. "On Monocular Depth Estimation and Uncertainty Quantification using Classification Approaches for Regression" Accepted in International Conference on Image Processing (ICIP 2022).
12. X Yu, G. Franchi, and E. Aldea. "SLURP: Side Learning Uncertainty for Regression Problems" Accepted in British Machine Vision Conference (BMVC 2021).
13. G. Franchi, Y. Hu, N. Belkhir, A. Bursuc, V. Blanz, and A. Yao "Reliable Semantic Segmentation with Superpixel-Mix" Accepted in British Machine Vision Conference (BMVC 2021).
14. G. Franchi, A. Bursuc, E. Aldea, S. Dubuisson, and I. Bloch. "One Versus all for deep Neural Network Incertitude (OVNNI) quantification" Accepted in Neural Information Processing Systems Workshop (NeurIPS Workshop 2020)
15. G. Franchi, A. Bursuc, E. Aldea, S. Dubuisson, and I. Bloch. "Encoding the latent posterior of Bayesian Neural Networks for uncertainty quantification" Accepted in Neural Information Processing Systems Workshop (NeurIPS Workshop 2020)
16. G. Franchi, A. Bursuc, E. Aldea, S. Dubuisson, and I. Bloch. "TRADI: Tracking deep neural network weight distributions" Accepted in 16th European Conference on Computer Vision (ECCV 2020).
17. G. Franchi, E. Aldea, S. Dubuisson, and I. Bloch. "Tracking Hundreds of People in Densely Crowded Scenes With Particle Filtering Supervising Deep Convolutional Neural Networks." Accepted in 18th Image Processing, 2020 IEEE International Conference on Image Processing (ICIP 2020).
18. G. Franchi, E. Aldea, S. Dubuisson, and I. Bloch. "Crowd Behavior Characterization for Scene Tracking." Accepted in 16th IEEE International Conference on Advanced Video and Signal Based Surveillance (AVSS). IEEE, 2019.
19. G. Franchi, A. Yao and A. Kolb "Supervised Deep Kriging for Single-Image Super-Resolution." Accepted in German Conference on Pattern Recognition 2018
20. M. L. Ha, G. Franchi, M. Moeller, A. Kolb, V. Blanz, "Segmentation and Shape Extraction from Convolutional Neural Networks". Accepted in Winter Conference on Applications of Computer Vision, 2018 (WACV 2018)
21. G. Franchi, and J. Angulo. "A deep spatial/spectral descriptor of hyperspectral texture using scattering transform". Accepted in 14th Image Processing, 2016 IEEE International Conference on, Phoenix, (ICIP 2016)
22. G. Franchi, J. Angulo, and D. Sejdinovic. "Hyperspectral image classification with support vector

- machines on kernel distribution embeddings". Accepted in 14th Image Processing, 2016 IEEE International Conference on, Phoenix, (ICIP 2016)
23. G .Franchi, and J. Angulo. "Quantization of hyperspectral image manifold using probabilistic distances". Accepted in Geometric Science of Information (pp. 406-414). Springer International Publishing (GSI 2015).
 24. G .Franchi, and J. Angulo. "Ordering on the probability simplex of endmembers for hyperspectral morphological image processing". Accepted in 12th International Symposium on Mathematical Morphology (ISMM 2015)
 25. G .Franchi, and J. Angulo. "Bagging Stochastic Watershed on Natural Color Image Segmentation" Accepted in 12th International Symposium on Mathematical Morphology (ISMM 2015)
 26. G. Franchi and J. Angulo. "Spatially-variant area openings for reference-driven adaptive contour preserving filtering". Accepted in 22nd International Conference on Pattern Recognition (ICPR 2014), Stockholm, Sweden, August 2014.
 27. G. Franchi and J. Angulo. "Comparative study on Morphological Principal Component Analysis of hyperspectral images". Accepted in 6th Workshop on Hyperspectral Image and Signal Processing (Whispers 2014), Lausanne, Switzerland, June 2014.