

Associate professor at Hubert Curien Laboratory

Associate professor with a PhD degree in Computer Science, 5 years of experience in the current position, a strong record of top-level publications in machine learning and artificial intelligence fields, scientific excellence rewards, supervision of Ph.D. and MSc students.



## Education

- Oct., 2012 – **Paris Sorbonne Cité University (LIPN laboratory) - Paris, France**  
 Sep., 2015 **PhD student, Machine Learning and Applications team.**  
 **Topic:** Non-negative matrix factorization for unsupervised transfer learning  
**Thesis advisor:** Younès Bennani  
**PhD jury:** Patrick Gallinari (University Paris 6), Stéphane Canu (INSA Rouen), Marc Sebban (University Jean Monnet), Vincent Lemaire (Orange Labs)
- Sep., 2011 – **Ecole Centrale de Lyon - Ecully, France**  
 Aug., 2012 **Engineering cursus, Mathematics and Decision Making.**  

  - French government scholarship
  - Internship on software design
- Sep., 2011 – **NTUU "Igor Sikorsky Kyiv Polytechnic Institute" - Kyiv, Ukraine**  
 Aug., 2012 **Master's degree, Intelligent systems for Decision Making.**  

  - Government scholarship
  - Average grade > 4.5/5

## Professional appointments

- Sep., 2018 – **Hubert Curien Laboratory - Saint-Etienne, France**  
 present **Associate professor, Data Intelligence team.**  
 Research in fundamental and applied machine learning.
  - Transfer learning and domain adaptation
  - Applications to healthcare
  - Optimal transport in machine learning
  - Game theory and machine learning
- Sep., 2016 – **CREATIS Laboratory - Villeurbanne, France**  
 Aug., 2018 **Associate professor, Images and models team.**  
 Working on the application of machine learning to medical imaging.
  - Epileptic lesion detection
  - Brain decoding and neuroimaging (collaboration with Institut of Neuroscience of Timone)
  - Prostate cancer mapping
- Feb., 2016 – **Hubert Curien Laboratory - Saint-Etienne, France**  
 Aug., 2016 **Post-doctoral fellow, Data Intelligence team.**  
 Multiview learning with interacting views - Collaboration with LIP6, LIF, Pixel, INT

## Publications

### Books

- 2019 **Domain adaptation theory: available theoretical results**, *ISTE Press-Elsevier*, Ievgen Redko, Emilie Morvant, Amaury Habrard, Marc Sebban, Younès Bennani.

### Selected peer-reviewed conferences

- 2021 **Deep Neural Networks Are Congestion Games: From Loss Landscape to Wardrop Equilibrium and Beyond**, (*AISTATS*), Nina Vesseron, Ievgen Redko, Charlotte Laclau.  
**All of the Fairness for Edge Prediction with Optimal Transport**, (*AISTATS*), Charlotte Laclau, Ievgen Redko, Manvi Choudhary, Christine Largeron.
- 2020 **CO-Optimal Transport**, *Advances in Neural Information Processing Systems (NeurIPS)*, Ievgen Redko, Titouan Vayer, Rémi Flamary, Nicolas Courty.

- Margin-aware Adversarial Domain Adaptation with Optimal Transport**, *International conference on machine learning (ICML)*, Sofien Dhoub, Ievgen Redko, Carole Lartizien.
- A Swiss Army Knife for Minimax Optimal Transport**, *International conference on machine learning (ICML)*, Sofien Dhoub, Ievgen Redko, Tanguy Kerdoncuff, Rémi Emonet, Marc Sebban.
- 2019 **Optimal Transport for Multi-source Domain Adaptation under Target Shift**, *International Conference on Artificial Intelligence and Statistics (AISTATS)*, Ievgen Redko, Nicolas Courty, Rémi Flamary, Devis Tuia.
- On Fair Cost Sharing Games in Machine Learning**, *AAAI Conference on Artificial Intelligence (AAAI)*, Ievgen Redko, Charlotte Laclau.
- 2018 **Revisiting  $(\epsilon, \gamma, \tau)$ -similarity learning for domain adaptation**, *Advances in Neural Information Processing Systems (NeurIPS)*, Sofiane Dhoub, Ievgen Redko.
- Feature Selection for Unsupervised Domain Adaptation Using Optimal Transport**, *Joint European Conference on Machine Learning and Knowledge Discovery in Databases (ECML/PKDD)*, Léo Gautheron, Ievgen Redko, Carole Lartizien.
- Cross-Lingual Document Retrieval Using Regularized Wasserstein Distance**, *European Conference on Information Retrieval (ECIR)*, Georgios Balikas, Charlotte Laclau, Ievgen Redko, Massih-Reza Amini.
- Population Averaging of Neuroimaging Data Using Lp Distance-based Optimal Transport**, *International Workshop on Pattern Recognition in Neuroimaging (PRNI)*, Qi Wang, Ievgen Redko, Sylvain Takerkart.
- 2017 **Co-clustering through Optimal Transport**, *International conference on machine learning (ICML)*, Charlotte Laclau, Ievgen Redko, Basarab Matei, Younès Bennani, Vincent Brault.
- Theoretical Analysis of Domain Adaptation with Optimal Transport**, *Joint European Conference on Machine Learning and Knowledge Discovery in Databases (ECML/PKDD)*, Ievgen Redko, Amaury Habrard, Marc Sebban.

#### *Journals*

- 2021 **POT: Python Optimal Transport**, (*JMLR*), Rémi Flamary, Nicolas Courty, Alexandre Gramfort, Hicham Janati, Mokhtar Z. Alaya, Aurelie Boisbunon, Stanislas Chambon, Laetitia Chapel, Kilian Fatras, Titouan Vayer, Nemo Fournier, Nathalie Therese Helene Gayraud, Léo Gautheron, Ievgen Redko, Alain Rakotomamonjy, Antoine Rolet, Vivien Seguy, Antony Schutz, D.J. Sutherland, Romain Tavenard, Alexander Tong.
- 2019 **On the analysis of adaptability in multi-source domain adaptation**, *Machine learning journal (MLJ)*, Ievgen Redko, Amaury Habrard, Marc Sebban.
- 2016 **Non-negative embedding for fully unsupervised domain adaptation**, *Pattern Recognition Letters (PRL)*, Ievgen Redko, Younès Bennani.

#### *Pre-prints*

- 2020 **A ridge regression approach for fast bilinear similarity learning with theoretical guarantees**, *submitted*, Sofien Dhoub, Ievgen Redko.
- Rank-one partitioning: formalization, illustrative examples, and a new cluster enhancing strategy**, *submitted*, Charlotte Laclau, Franck Iutzeler, Ievgen Redko.
- Putting Theory to Work: From Learning Bounds to Meta-Learning Algorithms**, *submitted*, Quentin Bouniot, Ievgen Redko, Romaric Audigier, Angélique Loesch, Amaury Habrard.

---

#### Awards

- 2020 **Top reviewer**, *Advances in Neural Information Processing Systems (NeurIPS)*.
- Top reviewer**, *International Conference on Machine Learning (ICML)*.

- 2019 **Top reviewer**, *Advances in Neural Information Processing Systems (NeurIPS)*.
- 2018 **Distinguished Program Committee member**, *International Joint Conferences on Artificial Intelligence (IJCAI)*.
- 2014 **Best Poster Award**, *Summer School on Machine learning (EPAT)*, Bridge Convex Non-negative Matrix Factorisation for Unsupervised Transfer learning.

---

## Research activities

### *PhD students supervision*

- Dec., 2019 – **PhD student, CEA LIST**  
 present **Few-shot learning for object detection/segmentation**, *Quentin Bouinot*.  
 • Industrial PhD      • Co-supervision with A. Habrard (Prof. UJM), R. Audigier (CEA)
- Sep., 2019 – **PhD student, THALES**  
 present **Self-supervised continual learning**, *Yevhenii Zotkin*.  
 • Industrial PhD      • Co-supervision with Marc Sebban (Prof. UJM)
- Sep., 2018 – **PhD student, Physics lab, ENS de Lyon**  
 present **Transfer learning on graphs**, *Yacouba Kaloga*.  
 • Co-supervision with P. Borgnat (Senior Researcher CNRS), A. Habrard (Prof. UJM)
- Sep., 2017 – **PhD student, CREATIS, INSA de Lyon**  
 present **Provably accurate metric learning for heterogeneous medical imaging: application to multi-view learning and domain adaptation**, *Sofiane Dhouib*.  
 • Ministry scholarship      • Co-supervision with Carole Lartizien (Senior Researcher CNRS)

### *Master's students supervision*

- 2020 **Game theory and neural networks**, *Nina Vesseron*, ENS de Lyon, M1 student.  
**AI and creativity for design**, *Deepakumar Moorthy*, University Jean Monnet, M1 student.
- 2019 **Machine learning for bone porosity estimation**, *Robin Khatri*, University Jean Monnet, M1 student.
- 2018 **Machine learning for single-pixel camera**, *Sixian Xu*, TELECOM Saint-Etienne, M2 student.
- 2017 **Optimal transport for prostate cancer mapping**, *Léo Gautheron*, University Jean Monnet, M2 student.  
**Multi-view learning for epilepsy lesion detection**, *Dimitrios Tsolakidis*, University Jean Monnet, M1 student.

### *Community service*

- 2021 **ACL**, *Reviewing mentoring tutorial*, A video tutorial to review scientific papers.
- 2020 **NewInML@NeurIPS workshop**, *Mentor*.  
**Metalearn@NeurIPS workshop**, *Senior reviewer*, Mentoring junior reviewers.
- 2019 **NewInMLNeurIPS workshop**, *Reviewer*.
- 2017-2020 **French Conference on Machine Learning**, *Program committee*, Organization committee in 2020.
- 2017-2020 **NeurIPS'17,'19,'20, ICML'16,'20, IJCAI'18,'19**, *Reviewer*.
- 2016-2020 **Annals of Statistics, JMLR, TKDE, Neurocomputing, Pattern recognition, KAIS**, *External reviewer*.

---

## Invited talks

- 2020 **Deep Neural Networks are Congestion Games**, *INRIA TAU team*, Paris, France.
- 2019 **Tutorial on Transfer Learning and Optimal Transport**, *SciDoLySE (Science des Données à Lyon et Saint-Etienne)*, Saint-Etienne, France.  
 Joint seminar with Filippo Santambrogio

- Optimal transport for domain adaptation with real-world applications**, *Workshop on Optimal Transport in Machine Learning and Signal Processing*, Paris, France.  
Invited speaker with Gabriel Peyré, Nicolas Papadakis
- Tutorial on Optimal Transport**, Univ. of Angers, France.  
Joint seminar with Nicolas Courty
- 2018 **Machine learning and medical imaging with heterogeneous data**, *ATLAS workshop on machine learning and statistics for medical data*, Grenoble, France.
- Feature Selection for Interpretable Domain Adaptation**, *Workshop on Machine Learning and Explainability*, Orléans, France.
- Machine Learning through Optimal Transport**, *International Francophone Conference on Data Science*, Tanger, Morocco.
- 2017 **Learning bounds and co-clustering**, *NAVER Labs*, Grenoble, France.
- Optimal transport and co-clustering**, *Institut of Mathematics*, Marseille, France.

---

## References

### 1. Amaury Habrard

**Full professor at University of Saint-Etienne**, *head of Data intelligence team*.

**Address:** Laboratoire Hubert Curien

18 rue du Professeur Benoît Lauras

42000 Saint-Etienne, FRANCE

**E-mail:** amaury.habrard@univ-st-etienne.fr

### 2. Massih Reza-Amini

**Full professor at University of Grenoble-Alpes**, *head of AMA team*.

**Address:** Université Grenoble Alpes, Laboratoire d'Informatique de Grenoble  
Bâtiment IMAG

700 Avenue Centrale, Bureau 317

38400 Saint Martin d'Hères, FRANCE

**E-mail:** massih-reza.amini@univ-grenoble-alpes.fr

### 3. Nicolas Courty

**Full professor at University of Bretagne Sud**.

**Address:** Laboratoire IRISA

Campus de Tohannic

56000 Vannes, FRANCE

**E-mail:** nicolas.courty@irisa.fr