VU-LINH NGUYEN

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RESEARCH FIELDS

- Uncertainty quantification, Probabilistic machine learning
- Supervised, unsupervised and semi-supervised learning
- Learning from imperfect data, Learning from mixed data
- Active learning, Ensemble learning

WORK EXPERIENCE

Université de Technologie de Compiègne, Compiègne, France *Dec 2022 - Present*
Junior Professor (Chaire de professeur junior)

Eindhoven University of Technology, Eindhoven, The Netherlands *Feb 2021 - Dec 2022*
Postdoctoral Researcher

Paderborn University, Paderborn, Germany *Nov 2018 - Nov 2020*
Postdoctoral Researcher

CAREER BREAK

Parental Leave *Sep 2020 - Feb 2021*

EDUCATION

University of Technology of Compiègne, Compiègne, France *Oct 2015 - Sep 2018*
Ph.D. in Computer Science
Ph.D. Thesis: Imprecision in Machine Learning Problems Available online
Advisor: Dr. Sébastien Destercke and Prof. Marie-Hélène Masson
Dissertation Committee: Prof. Thierry Denoeux (Chair), Prof. Eyke Hüllermeier (Examiner), Prof. Cassio Polpo de Campos (Reviewer), Prof. Inés Couso (Reviewer)

Japan Advanced Institute of Science and Technology, Ishikawa, Japan *Apr 2013 - Mar 2015*
M.S. in Knowledge Science
M.S. Thesis: Study on Tensor Calculus and CP-decomposition Available online
Advisor: Prof. Tu-Bao Ho
Dissertation Committee: Prof. Hieu-Chi Dam, Prof. Van-Nam Huynh, Prof. Fujinami Tsutomu

VNU University of Science, Hanoi, Vietnam *Aug 2008 - Mar 2013*
B.S. in Mathematics
B.S. Thesis: Applied Copula in Financial Risk Measurement
Advisor: Prof. Trong-Nguyen Tran

HONORS AND AWARDS

ISIPTA Young Researcher Award: Honorable Mention *2019*
ISIPTA 2019, Ghent, Belgium

Third Grade/Prize in Algebra *2010*
National Mathematics Olympics Contest for University Students, Hue, Vietnam

ACHIEVEMENTS AND CERTIFICATES

Shortlisted for a WASP Assistant Professor position: Lund University, Sweden *2022*
Topic: Mathematical Statistics with specialization in Foundations of Scientific Machine Learning
Description & Note: A six year tenure track position with funding to recruit 2 two-year postdocs and 1 Ph.D. student, funded by the WASP program (3 candidates were shortlisted). I withdrew my application after accepting the job offer from the UTC.

Preselection (Admis à poursuivre): CNRS competition *2022*

Coursera Course Certificates
Fundamentals of Digital Image and Video Processing (2017), Machine Learning (2016)

PROFESSIONAL SERVICES

Member of the Program Committee:

- **Highly selective conferences**: AAAI (2021, 2023), AISTATS (2021–2022), UAI (2021)
- **Other conferences**: ISIPTA (2023), IUKM (2023)

Member of the Organisation Committee: SMPS/BELIEF (2018), WUML & WPMSIIP (2017)

Reviewer: International Journal of Approximate Reasoning (2023–2024), Pattern Recognition (2023), ACM Transactions on Probabilistic Machine Learning (2024)

Grant reviewing: National Science Center, Poland (2024)

TEACHING EXPERIENCE

Master's degree programs (4)

- **Université de Technologie de Compiègne, Compiègne, France** *2023*
  Lecturer in AOS4 - Décision multicritère et sous incertitudes : introduction. I participated in designing and delivering this course.
- **Eindhoven University of Technology, Eindhoven, The Netherlands** *2022*
  Lecturer in Uncertainty Representation and Reasoning. I participated in designing and delivering this course.
- **Eindhoven University of Technology, Eindhoven, The Netherlands** *2022*
  Co-Lecturer (group supervisor) in Data Intelligence Challenge. I supervised 10 groups of MSc students and graded reports and presentations of 10 other groups.
- **Eindhoven University of Technology, Eindhoven, The Netherlands** *2021*
  Teaching Assistant in Foundations of Artificial Intelligence. I participated in the discussion for the design of the course and took a supporting role during the course, reviewing and grading reports and software/code, attending all lectures and proposing exercises related to the lectures.

SUPERVISION

Open Positions (1)

- **PhD Student** (co-supervised with **Marie-Hélène Masson** and **Sébastien Destercke**): Robustness in Machine Learning Explanations.

Postdocs (1, Comming soon)

- **Kim-Dung Tran** (co-supervised with **Sébastien Destercke**): Tensor Decompositions and Their Applications in Machine Learning, 2024.

PhD Students (1)

- **Thu-Ha Do** (co-supervised with **Yves Grandvalet**): Probabilistic Graphical Models for Complex Learning Tasks, 2023–2026.

Master Thesis Students (3)

- **Salvador Madrigal Castillo** (co-supervised with **Cyprien Gilet** and **Sébastien Destercke**): Minimax Classifiers for Multi-Label Classification, University of Technology of Compiègne, Compiègne, France, 2024.
- **Yang Yang** (graduated with Cum Laude, co-supervised with **Cassio de Campos**): Learning Multi-Dimensional Bayesian Network Classifiers, Eindhoven University of Technology, Eindhoven, The Netherlands, 2022.
- **Rashad Ghassani** (co-supervised with **Sébastien Destercke** and **Marie-Hélène Masson**): Statistical Methods for the Analysis of Uncertain and Imprecise Data, University of Technology of Compiègne, Compiègne, France, 2017.

VISITING POSITIONS

Paderborn University, Paderborn, Germany *Apr 2017 - Jun 2017*
Intelligent Systems and Machine Learning group, Department of Computer Science, Paderborn University, Germany.

WORKS IN PROGRESS

Journal submissions (2)

JS2. **Nguyen, V.L.**, Zhang, H. and Destercke, S. (2024). Credal ensembling in multi-class classification. pp. 1-56.

JS1. **Nguyen, V.L.**, Hoang, X.T., Hoang, A. and Huynh, V.N. (2024). On the Inference Problem and Evaluation Metrics in Probabilistic Multi-Label Classification. pp. 1-37.

PUBLICATIONS (17+1=18)

The following list contains 17 *peer-reviewed publications:* 4 *journal articles,* 5 *highly selective conference papers,* 7 *conference papers, and* 1 *parts in books or collections. Journal of Artificial Intelligence Research and Machine Learning have been considered as prestigious journals in Artificial Intelligence and Machine Learning. Highly selective conferences are of the same level as (good) journals. 1 preprint is also listed.*

Journal articles (4)

J4. **Nguyen, V.L.**, Shaker, M.H., and Hüllermeier, E. (2022). How to Measure Uncertainty in Uncertainty Sampling for Active Learning. *Machine Learning*, vol. 111(1), pp. 89-122, Springer. Paper

J3. **Nguyen, V.L.**, and Hüllermeier, E. (2021). Multilabel Classification with Partial Abstention: Bayes-Optimal Prediction under Label Independence. *Journal of Artificial Intelligence Research*, vol. 72, pp. 613-665. AAAI Press. Paper

J2. **Nguyen, V.L.**, Destercke, S., Masson, M.H., and Ghassani, R. (2021). Racing Trees to Query Partial Data. *Soft Computing*, vol. 25(14), pp. 9285-9305, Springer. Paper Preprint

J1. **Nguyen, V.L.**, Destercke, S., and Masson, M.H. (2018). Partial Data Querying Through Racing Algorithms. *International Journal of Approximate Reasoning*, vol. 964, pp. 36-55, Elsevier. Paper Preprint

Highly-selective-conference papers (5)

SC5. **Nguyen, V.L.**, Yang, Y., and de Campos, C. P. (2023). Probabilistic Multi-Dimensional Classification. In *Proceedings of the 39th Conference on Uncertainty in Artificial Intelligence (UAI)*, pp. 1-12, Proceedings of Machine Learning Research, PMLR. Paper Preprint

SC4. Rapp, M., Mencía, E.L., Fürnkranz, J., **Nguyen, V.L.**, and Hüllermeier, E. (2020). Learning Gradient Boosted Multi-label Classification Rules. In *Proceedings of the European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD)*, pp. 533-547, Lecture Notes in Artificial Intelligence, Springer. Paper Preprint

SC3. **Nguyen, V.L.**, and Hüllermeier, E. (2020). Reliable Multilabel Classification: Prediction with Partial Abstention. In *Proceedings of the 34th AAAI Conference on Artificial Intelligence (AAAI)*, pp. 5264-5271, AAAI Press. Paper Preprint

SC2. **Nguyen, V.L.**, Destercke, S., Masson, M.H., and Hüllermeier, E. (2018). Reliable Multi-class Classification based on Pairwise Epistemic and Aleatoric Uncertainty. In *Proceedings of the Twenty-seventh International Joint Conference on Artificial Intelligence (IJCAI)*, pp. 5089-5095, IJCAI Press. Paper Preprint

SC1. **Nguyen, V.L.**, Destercke, S., and Masson, M.H. (2017). Querying Partially Labelled Data to Improve a K-nn Classifier. In *Proceedings of the* 31*st AAAI Conference on Artificial Intelligence (AAAI)*, pp. 2401-2407, AAAI Press. Paper Preprint

Conference papers (7)

C7. **Nguyen, V.L.**, Hoang, X.T., and Huynh, V.N. (2023). Inference Problem in Probabilistic Multi-Label Classification. *Proceedings of the 10th International Symposium on Integrated Uncertainty in Knowledge Modelling and Decision Making (IUKM)*, pp. 3-14, Lecture Notes in Artificial Intelligence, Springer. Paper Preprint

C6. **Nguyen, V.L.**, Zhang, H. and Destercke, S. (2023). Learning Sets of Probabilities Through Ensemble Methods. In *Proceedings of the 17th European Conference on Symbolic and Quantitative Approaches to Reasoning with Uncertainty (ECSQARU)*, pp. 270-283, Lecture Notes in Artificial Intelligence, Springer. Paper Preprint

C5. Hüllermeier, E., Fürnkranz, J., Mencía, E.L., **Nguyen, V.L.**, and Rapp, M. (2020). Rule-based Multi-label Classification: Challenges and Opportunities. In *Proceedings of the 4th International Joint Conference on Rules and Reasoning (RuleML+RR)*, pp. 3-19, Lecture Notes in Computer Science, Springer. Paper Preprint

C4. **Nguyen, V.L.**, Hüllermeier, E. and Rapp, M., Mencía, E.L., and Fürnkranz, J. (2020). On Aggregation in Ensembles of Multilabel Classifiers. In *Proceedings of the 23nd International Conference on Discovery Science (DS)*, pp. 533-547, Lecture Notes in Artificial Intelligence, Springer. Paper Preprint

C3. **Nguyen, V.L.**, Destercke, S., and Hüllermeier, E. (2019). Epistemic Uncertainty Sampling. In *Proceedings of the 22nd International Conference on Discovery Science (DS)*, pp. 72-86, Lecture Notes in Artificial Intelligence, Springer. Paper Preprint

C2. **Nguyen, V.L.**, Destercke, S., and Masson, M.H. (2017). K-Nearest Neighbour Classification for Interval-Valued Data. In *Proceedings of the 11th International Conference on Scalable Uncertainty Management (SUM)*, pp. 93-106, Lecture Notes in Artificial Intelligence, Springer. Paper Preprint

C1. **Nguyen, V.L.**, Destercke, S., and Masson, M.H. (2016). Partial Data Querying Through Racing Algorithms. In *Proceedings of the 5th International Symposium on Integrated Uncertainty in Knowledge Modelling and Decision Making (IUKM)*, pp. 163-174, Lecture Notes in Artificial Intelligence, Springer. Paper Preprint

Parts in books or collections (1)

P1. **Nguyen, V.L.**, and Huynh, V.N. (2015) . Using Conditional Copula to Estimate Value-at-Risk in Vietnam's Foreign Exchange Market. In *Econometrics of Risk*, pp. 471-482, Studies in Computational Intelligence, Springer. Paper Preprint

Preprint (1)

PR1. Carranza Alarcón, Y. C., and **Nguyen, V.L.** (2022) . Skeptical inferences in multi-label ranking with sets of probabilities. In *arXiv e-prints*, pp. 1-19. Preprint