Hong-Phuong Dang

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https://hphuongdang.github.io

Research interests

Key words **machine learning, clustering, dictionary learning, matrix factorization, Bayesian non-parametric, stochastic process, Markov chain Monte Carlo,sparse representations, inverse problems, statistical signal processing, interaction between Bayesian methods and optimization,** . . . .

Academic positions

Since 09/2017 **Assistant Professor (tenure track)**, *in Machine Learning*, ENSAI/CREST.

10/2016 - 08/2017 **ATER-Assistant lecturer**, *Centrale Lille/CRIStAL*, team SIGMA.

Education

01/10/2013 - 01/12/2016 **Doctorat (Ph.D.)**, *Centrale Lille*, CRIStAL, under the supervision of M.Pierre Chainais.

- Subject: "Nonparametric Bayesian approaches and dictionary learning for inverse problems in image processing "
- Reviewers : Florence Forbes et Cédric Févotte
- Jury members : Agnès Desolneux, Stéphane Canu and Jérôme Idier.

2012 - 2013 **Master (M.Sc.)**, *University Rouen*, Computing, Information and System Engineering.
Option: Multimedia Data Processing

2009 - 2013 **Engineering degree(equ. M.Sc)**, *INSA Rouen*, Information Systems Architectures (Computer Science).
Option: Data Engineering

Teaching Experience

Since 2019 **Co-head**, *Specialization : Advanced Tools for Data Science & Machine Learning Data Scientist, ENSAI.*

01/09/2017 - now **Assistant Professor**, *ENSAI*, Computer Science Department, ∼**100h/ans**.
Algorithms and Programming, Data Processing Project, Optimization, Supervised Learning, Office Tools, Signal Processing, Tutor/jury for internships and various projects

01/10/2016 - 31/08/2017 **ATER**, *Centrale Lille*, **176h**.
Signal Processing (English and French), Telecommunication, Probability, Electronics.

2014 - 2016 **Teaching Assistant**, *Centrale Lille*, **128h**, Signal Processing.

Supervision

2020- **Ph. D. student**, *Univ. Rennes 1*, 25%, I have co-supervised Thu Le Tran's Ph.D with Valérie Monbet (Prof. Univ. Rennes 1 & IRMAR), Cédric Herzet (Inria Rennes & IRMAR), Joyce Madison Giacofci (Univ. Rennes 2 & IRMAR), on *Diagnosis of liver diseases with sparses representations in continuous dictionaries.*.

2018 **Master student**, *Ensai*, 50%, I have co-supervised Loïs Alain and François Le Rest internships (M1) with Myriam Vimond (Ensai & Crest), on *Non-parametric models based on stochastic processes and the expectation-maximization algorithm to segment images* .

2019 **Master student**, *Ensai*, 80%, I have co-supervised Lucas Bouju internship (M1) with Elvira Clément Inria Rennes & IRISA), on *Online Dictionary Learning using Gibbs sampling* .

Administrative activities

2017-Now **Appointed Member**, *School Council*, ENSAI.

2015 - 2017 **Elected Member**, *Laboratory Council*, CRIStAL.

04 - 12/2014 **Secretary**, *PhD Association*, Ecole Centrale de Lille.

04 - 12/2014 **Treasurer**, *Association engineering sciences for the promotion of the PhD degree*, Lille.

Languages

Vietnamese	Native
French	Bilingual
English	Fluent

Publications

International journal papers

1. *H-P. Dang*, M. Vimond, S. Geffray. Data-Driven Parameter Choice for Illumination Artifact Correction of Digital Images. **IEEE Signal Processing Letters (SSP)**, vol. 28 : 155-159, 2021.
2. *H-P. Dang*, P. Chainais. Indian Buffet Process Dictionary Learning : algorithms and applications to image processing. **International Journal of Approximate Reasoning (IJAR)**, 83 : 1-20, 2017.
3. *H-P. Dang*, P. Chainais. Towards dictionaries of optimal size : a Bayesian non parametric approach. **Journal of Signal Processing Systems (JSPS)**, 1-12, 2016.
4. E. Rault, T. Lacornerie, *H-P. Dang*, F. Crop, E. Lartigau, N. Reynaert, D. Pasquier. Accelerated partial breast irradiation using robotic radiotherapy: a dosimetric comparison with tomotherapy and three-dimensional conformal radiotherapy. **Radiation Oncology**, 11(1), 2, 2016.
5. E. Rault, T. Lacornerie, *H-P. Dang*, E. Lartigau, N. Reynaert, D. Pasquier. EP-1610: Accelerated partial breast irradiation using the CyberKnife: A feasibility study. **Radiotherapy and Oncology**, no 111, S207-S208, 2014.

International conference papers

6. *H-P. Dang*, C. Elvira. Parameter-free Small Variance Asymptotics for Dictionary Learning. **Proc. of the 27th European Signal Processing Conference (EUSIPCO)**, 2019.
7. C. Elvira, *H-P. Dang*, P. Chainais. Small variance asymptotics and bayesian nonparametrics for dictionary learning. **Proc. of the 26th European Signal Processing Conference (EUSIPCO)**, 2018.
8. *H-P. Dang*, P. Chainais. Indian Buffet Process Dictionary Learning for image inpainting. **IEEE Workshop on Statistical Signal Processing (SSP)**, 2016.
9. *H-P. Dang*, P. Chainais. A Bayesian non parametric approach to learn dictionaries with adapted numbers of atoms. **IEEE International Workshop on Machine Learning for Signal Processing (MLSP)**, 1–6, **Intel best paper award**, 2015.

National conference papers

10. *H-P. Dang*, M.Vimond. Segmentation adaptative d'image avec un nombre efficace de classes en utilisant l'algorithme Expectation-Maximisation pour modèle de mélange par processus de Dirichlet tronqué. **Conférence sur l'Apprentissage automatique (CAp)**, 2019.
11. *H-P. Dang*, C. Elvira, P. Chainais. Vers une méthode d'optimisation non paramétrique pour l'apprentissage de dictionnaire en utilisant Small-Variance Asymptotics pour modèle probabiliste. **Conférence sur l'Apprentissage automatique (CAp)**, 2018.
12. *H-P. Dang*, P. Chainais. Apprentissage de dictionnaire non paramétrique pour les problèmes inverses en traitement d'image. **Journées de Statistique**, 2018.
13. *H-P. Dang*, P. Chainais. Approche bayésienne non paramétrique dans l'apprentissage du dictionnaire pour adapter le nombre d'atomes. **Conférence nationale Gretsi**, 2015.

Funding resources

2017	Scientific installation grant (AIS) (10k€), Rennes Métropole
2015	Grant for the international mobility (4k€), Collège doctorale Lille Nord de France, Région Nord – Pas de Calais, Central Foundation Initiatives, GdR MIA

Awards

2015	Intel Best Paper Award, IEEE Int. Workshop on MLSP

Evaluation and expertise works

Review

Journal	IEEE Signal Processing Letters, IEEE Transactions on Signal Processing.
Conference	IEEE International Workshop on Machine Learning for Signal Processing (MLSP), IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP).

Jury

04/06/2018	**Follow-up committee**, *Vasile Cazacu*.
03/06/2019	CIDRE research team - Inria Rennes / IRISA.