

# Alexis Linard | Postdoctoral Researcher

KTH Royal Institute of Technology – Division of Robotics, Perception and Learning  
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## Interests

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Robotics, Machine Learning, Cyber-Physical Systems, Model Learning, Failure Diagnosis, Temporal Logics. . .

## Education

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**Radboud University** **Nijmegen, The Netherlands**  
*Ph.D. in Computer Science* 2015–2019

- *Learning Models for Cyber-Physical Systems* (PhD Thesis)
- Research topics: Cyber-Physical Systems, Automata Learning, Fault Trees
- Supervisor: Frits Vaandrager

**University of Nantes** **Nantes, France**  
*Master's Degree in Natural Language Processing and Machine Learning* 2013–2015

- *Bilingual Lexicon Extraction using Comparable Corpora and Pivot Language* (Master's thesis)
- Supervisors: Béatrice Daille & Emmanuel Morin

**Institute of Technology, University of Nantes** **Nantes, France**  
*Bachelor's Degree in Computer Science* 2012–2013

**Institute of Technology, University of Nantes** **Nantes, France**  
*University Degree in Computer Science* 2010–2012

*Baccalaureate in Science* 2010  
with honours

## Experience

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Researcher.....

**KTH – Royal Institute of Technology** **Stockholm, Sweden**  
*Postdoctoral Researcher* from October 2019

Department of Robotics, Perception, and Learning.  
*Correct-by-design and Socially Acceptable Autonomy.*

**Radboud University** **Nijmegen, The Netherlands**  
*Ph.D. Candidate* September 2015–August 2019

*Learning Models for Cyber-Physical Systems* (thesis).

Project in collaboration with Canon, under the Dutch “Robust design of Cyber-Physical Systems (CPS)” program:

- Identification of Printjob Patterns.
- Failure Prediction: case study, log analysis, failure modeling.
- Fault Tree Induction for Safety-Critical Systems.

**LINA - University of Nantes***Intern as Researcher**Bilingual Lexicon Extraction using Comparable Corpora and Pivot Language.***Nantes, France***January–July 2015***Universitat Politècnica de Catalunya***Intern as Researcher**Preliminary Work on Asthmatic People Health Prediction.***Barcelona, Spain***June–July 2014*

Programmer.....

**Netapsys***Programmer/Analyst**Project for French Ministry of Health***Nantes, France***March–September 2013***Coremain***Programmer/Analyst (intern)**Working on web applications***Santiago de Compostela, Spain***April–June 2012*

## References

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Please, feel free to contact my referees for further information and recommendation:

Dr. **Jana Tumová**.....✉ [tumova@kth.se](mailto:tumova@kth.se)Prof. **Frits Vaandrager**.....✉ [f.vaandrager@cs.ru.nl](mailto:f.vaandrager@cs.ru.nl)

## Publications

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Journal Publications.....

[1]: Bueno, M. L., Hommersom, A., Lucas, P. J., Linard, A. “Asymmetric hidden Markov models”. 2017. *International Journal of Approximate Reasoning*, 88, 169-191.

Conference Papers.....

[1]: Linard, A., Tumova, J. “Active Learning of Signal Temporal Logic Specifications”. 2020. In *Proceedings of the IEEE 15th International Conference on Automation Science and Engineering, CASE 2020*.

[2]: Linard, A., Bucur, D., Stoelinga, M. “Fault Trees from Data: Efficient Learning with an Evolutionary Algorithm”. 2019. In *Proceedings of the Symposium on Dependable Software Engineering: Theories, Tools, and Applications, SETTA 2019*.

[3]: Linard, A., Bueno, M., Bucur, D., Stoelinga, M. “Induction of Fault Trees through Bayesian Networks”. 2019. In *Proceedings of the 29th European Safety and Reliability Conference, ESREL 2019*.

[4]: Linard, A., van Pinxten, J. “An Application of Hyper-Heuristics to Flexible Manufacturing Systems”. 2019. In *Proceedings of the 22nd Euromicro Conference on Digital System Design, DSD 2019*.

[5]: Linard, A., de la Higuera, C., Vaandrager, F. “Learning Unions of  $k$ -Testable Languages”. 2019. In *International Conference on Language and Automata Theory and Applications, LATA 2019*.

[6]: Linard, A. “Learning Several Languages from Labeled Strings: State Merging and Evolutionary Approaches”. 2018. Learning and Automata (LearnAut 2018). *arXiv preprint*: arXiv:1806.01630

[7]: Linard, A., Smetsers, R., Vaandrager, F., Waqas, U., van Pinxten, J., Verwer, S. “Learning Pairwise Disjoint Simple Languages from Positive Examples”. 2017. Learning and Automata (LearnAut 2017). *arXiv preprint: arXiv:1706.01663*

[8]: Linard, A., Bueno, M. L. “Towards adaptive scheduling of maintenance for cyber-physical systems”. 2016. In *Proceedings of the 7th International Symposium on Leveraging Applications of Formal Methods, 134-150*.

[9]: Linard, A., Daille, B., Morin, E. “Extraction de lexiques bilingues à partir de corpus comparables spécialisés à travers une langue pivot”. 2016. In *Actes de la conférence conjointe JEP-TALN-RECITAL 2016 (2), 180-193*.

[10]: Bueno, M. L., Hommersom, A., Lucas, P. J., Verwer, S., Linard, A. “Learning complex uncertain states changes via asymmetric hidden Markov models: an industrial case”. 2016. In *Proceedings of the Eighth International Conference on Probabilistic Graphical Models, PGM 2016, 50-61*.

[11]: Linard, A., Daille, B., Morin, E. “Attempting to bypass alignment from comparable corpora via pivot language”. 2015. In *Proceedings of the Eighth Workshop on Building and Using Comparable Corpora, 32-37*.

## Talks

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### Invited Seminar Talks.....

**April 2018:** Learning Adaptive Maintenance Policies: Towards Learning of Fault Trees from Data. Lorentz Workshop “Safety of Future Systems: Science meets Industry”.

**March 2018:** Learning Adaptive Maintenance Policies for Cyber-Physical Systems. Dagstuhl Seminar 18121 “Machine Learning and Model Checking Join Forces”.

### Conference Talks.....

**August 2020:** CASE 2020 (online). Hong Kong. “Active Learning of Signal Temporal Logic Specifications”.

**November 2019:** SETTA 2019. Shanghai, China. “Fault Trees from Data: Efficient Learning with an Evolutionary Algorithm”. **Best Presentation Award**.

**September 2019:** ESREL 2019. Hanover, Germany. “Induction of Fault Trees through Bayesian Networks”.

**August 2019:** DSD 2019. Kallithea, Greece. “An Application of Hyper-Heuristics to Flexible Manufacturing Systems”.

**March 2019:** LATA 2019. St Petersburg, Russia. “Learning Unions of  $k$ -Testable Languages”.

**July 2018:** LearnAut 2018. Oxford, UK. “Learning Several Languages from Labeled Strings: State Merging and Evolutionary Approaches”.

**October 2016:** ISOLA 2016. Corfu, Greece. “Towards Adaptive Scheduling of Maintenance for Cyber-Physical Systems”.

**July 2016:** TALN 2016. Paris, France. “Extraction de lexiques bilingues à partir de corpus comparables spécialisés à travers une langue pivot”.

**July 2015:** BUCC 2015. Beijing, China. “Attempting to bypass alignment from comparable corpora via pivot language”.

## Professional Activities

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Session Chair.....

SETTA 2019.

Reviewer.....

ACM Transactions on Cyber-Physical Systems, FORMATS 2020, RSS 2020, ICCPS 2020, Springer Machine Learning, ICANN 2019, QEST 2019, ICGI 2018.

Others.....

**2020:** KTH, RPL Postdocs Representative.

## Awards

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**2019: Best Presentation Award**, for the paper “Fault Trees from Data: Efficient Learning with an Evolutionary Algorithm” presented at SETTA 2019. **3400CNY**.

**2019: Radboud “Rappe Promotie Premie”**, for having completed the PhD within 4 years. **1500EUR**.

## Teaching

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Master Thesis Supervision.....

**October 2018 – March 2019:** Patrick Tan: “Machine learning for predicting print job throughput times”

Courses.....

**2017, 2018:** Languages and Automata

**2016, 2017, 2018:** Machine Learning in Practice

**2017:** Algorithms and Data Structures

## Computer skills

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**Programming Languages:** Python, Java, R,  $\LaTeX$

## Languages

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**French:** Mothertongue

**English, Spanish, Dutch:** Fluent

**Swedish:** Basic