Basic Information

Alexis Linard. French national.

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

French: Mothertongue

English, Spanish, Dutch: Fluent

Swedish: Basic

References

Please, feel free to contact my references for further information and recommendation:
Jana Tumova (**KTH, Sweden**): tumova@kth.se

Frits Vaandrager (**Radboud University Nijmegen, The Netherlands**): f.vaandrager@cs.ru.nl

PhD degree

Radboud University — **Nijmegen, The Netherlands**
Ph.D. in Computer Science — *December 18, 2019*

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

Present employment

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.
Researcher position, with teaching opportunities.

Previous positions held

Researcher

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 behavioral patters from data.
- Fault Tree Induction, to understand faulty behaviors of Safety-Critical Systems.
- Failure Prediction and Model Checking

LINA - University of Nantes — **Nantes, France**
Intern as Researcher — *January–July 2015*
Bilingual Lexicon Extraction using Comparable Corpora and Pivot Language.

- Natural Language Processing
- Multilingual Applications

Universitat Politecnica de Catalunya — **Barcelona, Spain**
Intern as Researcher — *June–July 2014*
Preliminary Work on Asthmatic People Health Prediction.

Professional experience

Netapsys — **Nantes, France**
Programmer/Analyst — *March–September 2013*
Working on JAVA web applications, projects for French Ministry of Health.

Coremain **Santiago de Compostela, Spain**
Programmer/Analyst (intern) *April–June 2012*
Working on JAVA web applications.

Previous education

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 *2010–2013*

Publications

Doctoral thesis

[**PHD**]: Linard, A. "Learning Models for Cyber-Physical Systems". 2019. PhD thesis. Radboud University Nijmegen, The Netherlands.

Journal Publications

[**J1**]: 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

[**C1**]: Linard, A., Torre, I., Steen, A., Leite, I., Tumova, J. "Formalizing Trajectories in Human-Robot Encounters via Probabilistic STL Inference". 2021. To appear in *Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems, IROS.*

[**C2**]: Torre, I., Linard, A., Steen, A., Leite, I., Tumova, J. "Should robots chicken? How anthropomorphism and perceived autonomy influence trajectories in a game-theoretic problem". 2021. In *Proceedings of the ACM/IEEE International Conference on Human-Robot Interaction, HRI.*

[**C3**]: 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.*

[**C4**]: 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.*

[**C5**]: 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.*

[**C6**]: 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.*

[**C7**]: 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.*

[**C8**]: Linard, A. "Learning Several Languages from Labeled Strings: State Merging and Evolutionary Approaches". 2018. Learning and Automata (LearnAut). *arXiv preprint:* arXiv:1806.01630

[**C9**]: 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). *arXiv preprint:* arXiv:1706.01663

[**C10**]: 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, ISOLA.*

[**C11**]: 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 (2).*

[**C12**]: 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.*

[**C13**]: 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.*

Distinctions and awards

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**.

List of acquired external funding

Participation in grant proposals

WASP Industrial PhDs 2021: PI: Jana Tumova. In collaboration with Elekta.
Level of responsibility: co-PI.

SSF – Industrial PhD 2020: PI: Jana Tumova. In collaboration with Ericsson.
Level of responsibility: co-PI.

Talks

Invited Talks

May 2021: Towards Correct-by-design Social Autonomy. Digital Futures Seminar Series.
Video recording: https://youtu.be/g1iYjgWkR2w

April 2019: Learning Models for Cyber-Physical Systems. KTH, division of Robotics, Perception and Learning.

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".

April 2017: Learning Unions of Languages. University of Nantes, France, Laboratoire des Sciences du Numérique de Nantes.

Conference Talks

September 2021: IROS 2021 (online). "Formalizing Trajectories in Human-Robot Encounters via Probabilistic STL Inference".

August 2020: CASE 2020 (online). "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

Organization Committee

September 2021: Co-organizer of IROS 2021 workshop "RL-CONFORM: Reinforcement Learning meets Human-Robot Interaction, Control, and Formal Methods". *Workshop with a focus on ensuring safety and reliability of reinforcement learning applications by bringing together the control, formal methods and human-robot-interaction communities.*

Session Chair

- Digital Futures – "Dive-Deep lunch" Seminar Series (1x/week, May 2020 – January 2021).
- Symposium on Dependable Software Engineering: Theories, Tools and Applications (SETTA 2019).

Reviewer

- International Conference on Multimodal Interaction (ICMI 2021)
- International Conference on Concurrency Theory (CONCUR 2021)
- International Symposium on Mathematical Foundations of Computer Science (MFCS 2021)
- International Conference on Quantitative Evaluation of SysTems (QEST 2019, 2021)
- International Conference on Intelligent Robots and Systems (IROS 2021)
- Conference on Decision and Control (CDC 2021)
- ACM Transactions on Cyber-Physical Systems
- International Conference on Formal Modeling and Analysis of Timed Systems (FORMATS 2020)
- Robotics: Science and Systems (RSS 2020)
- Internation Conference on Cyber-Physical Systems (ICCPS 2020)
- Springer Machine Learning
- International Conference on Artificial Neural Networks (ICANN 2019)
- International Conference on Grammatical Inference (ICGI 2018)

Miscellaneous

from May 2020: KTH, RPL Postdocs Representative.

Pedagogical experience

Teaching experience

2021: **Reinforcement Learning** (KTH, FDD3359 – PhD course), 6hp.
Full preparation of 2 lectures (content and presentation).

2020: **Safe Autonomy** (KTH, DD3353 – PhD course), 3hp.
Full preparation of 2 lectures (content and presentation).

2017, 2018: **Languages and Automata** (Radboud University, NWI-IPC002 – 1st cycle), 3hp.
Full preparation of 1 lecture (content and presentation). Teaching assistant during the whole module (animating sessions, grading weekly assignments). Participation in grading final exams.

2016, 2017, 2018: **Machine Learning in Practice** (Radboud University, NWI-IMC030 – 2nd cycle), 6hp.
Coaching a group of students for course projects.

2017: **Algorithms and Data Structures** (Radboud University, NWI-IBC027 – 1st cycle), 6hp.
Full preparation of weekly group sessions (weekly assignments and solutions to be distributed to teaching assistants).

Doctoral Students Supervision

from June 2020: Wei Wang. Co-supervisor with Jana Tumova (main supervisor), KTH.

from April 2020: Georg Schuppe. Co-supervisor with Jana Tumova (main supervisor), KTH.

Master Students Supervision

from January 2021: Adithya Raju Ganeshan: "Dosimetric adaptive radiotherapy through Reinforcement Learning". Industrial master thesis with Elekta. Main supervisor, KTH.

October 2018 – March 2019: Patrick Tan: "Machine learning for predicting print job throughput times". Industrial master thesis with Canon (NL). Main supervisor, Radboud University Nijmegen (NL).

Docentship preparation

Doctoral Supervision (LH207V, 3 hp): June 2021 – The 3 credits are part of KTH's requirement of 15 credits in university teaching for employment or promotion to a teaching position.
Website: https://www.kth.se/student/kurser/kurs/LH207V?l=en