TONY LINDGREN

PERSONAL INFORMATION

Born in Sweden, 6 February 1974

email tony@dsv.su.se

website http://www.dsv.su.se/~tony

phone (W) +46 (0)8 16 17 01 · (M) +46 (0)70 190 6828

GOAL

Explore how to find things out.

WORK EXPERIENCE

2012–Present Senior lecturer, Stockholm University (SU)

Stockholm University Research and teaching at 80% of full time

2012–Present Senior developer, Solutions with Logic (SwL)

Solutions with Logic (SwL) Developing software at 40% of full time

2008-2012 Researcher, Scania CV AB

Scania CV AB Developed software for truck maintenance and troubleshooting

2005-2008 Temporary senior lecturer, SU

2000-2005 Doctoral student, SU

1999-2000 Research assistant, SU

ACADEMIC DEGREES

2018 Docent in Computer and System Sciences, Stockholm University

2006 Doctor of Philosophy in Computer and System Sciences, Stockholm University

Ph.D. Thesis: *Methods of solving conflicts among induced rules*

2003 Licentiate of Philosophy in Computer and System Sciences, Stockholm University

Ph.Lic. Thesis: *Rule Conflicts - New Methods of Resolution*

1999 Master of Computer and System Sciences, Stockholm University

Master of Computer and system sciences Thesis: *Anytime Inductive Logic Programming*

PUBLICATIONS (LAST FIVE YEARS)

Brief summary of research

Tony was during his Ph.D. studies involved in exploring methods for classifying examples for which multiple and possibly conflicting rules apply. He introduced new methods for handling such conflicts. During his time at Scania he has been working on practical problem as troubleshooting hardware

on trucks. He also has been involved in applying data mining to create predictive models for mechanical failures. Tony has done work on developing optimization models for use with heavy trucks. The optimization settings has been for matching trucks with transport missions to create transport routes that maximize long term profits for customers and optimizing maintenance occasions (maintenance content) to align with intended usage of trucks. He has worked on creating a simple expert system where maintenance experts can express how environmental and operational factors influence maintenance for different mechanical components of a truck. He has also been developing novel machine learning algorithms, for various use-cases including, but not limited to, handling histograms and feature tweaking of examples.

Wang He, Huang Weiquan, Magnússon Sindri, Lindgren Tony, Chen Chen, Wu Junyu, Song Yanjie, "Crowding distance and IGD-driven grey wolf reinforcement learning approach for multi-objective agile earth observation satellite scheduling", *International Journal of Digital Earth*, ISSN: 1753-8947, 2025

Randl Korbinian Robert, Pavlopoulos Ioannis, Henriksson Aron, Lindgren Tony, "Evaluating the Reliability of Self-Explanations in Large Language Models", *Springer Publishing CompanyLecture Notes in Computer Science (LNCS)*, ISSN: 0302-9743, 2025

Wang He, Huang Weiquan, Magnússon Sindri, Lindgren Tony, Wang Ran, Song Yanjie, "A Strategy Fusion-Based Multiobjective Optimization Approach for Agile Earth Observation Satellite Scheduling Problem", *IEEE Transactions on Geoscience and Remote Sensing*, ISSN: 0196-2892, pp. 1558-0644, 2024

K. Randl, J. Pavlopoulos, A. Henriksson, and T. Lindgren, "CICLe: Conformal In-Context Learning for Largescale Multi-Class Food Risk Classification", *In Findings of the Association for Computational Linguistics ACL*, pp. 7695–7715, 2024

I. Pavlopoulos, A. Romell, J. Curman, O. Steinert, T. Lindgren, M. Borg and K. Randl, "Automotive fault nowcasting with machine learning and natural language processing", *Machine Learning*, Vol 113, pp. 843-861, 2024

Kharazian Zahra, Lindgren Tony, Magnússon Sindri, Boström Henrik, "CoPAL: Conformal Prediction in Active Learning An Algorithm for Enhancing Remaining Useful Life Estimation in Predictive Maintenance", *Proceedings of the 13th Symposium on Conformal and Probabilistic Prediction with Applications COPA*, ML Research Press, pp. 195-217, 2024

A. Kuratomi, M. Ioanna, L. Zed, T. Lindgren and P. Papapetrou, "Ijuice: integer JUstIfied counterfactual explanations", *Machine Learning*, Vol 113, pp. 5731-5771, 2024

Kargar-Sharif-Abad Monireh, Kharazian Zahra, Miliou Ioanna, Lindgren Tony, "SHAP-Driven Explainability in Survival Analysis for Predictive Maintenance Applications", *CEUR Workshop Proceedings*, ISSN: 1613-0073, 2024

Z. Lee, T. Lindgren and P. Papapetrou, "Z-Time: efficient and effective interpretable multivariate time series classification", *Data mining and knowledge discovery*, Vol 38, no 1, pp. 206-236, 2024

K. Sun, S. Magnússon, O. Steinert and T. Lindgren, "Robust Contrastive Learning and Multi-shot Voting for High-dimensional Multivariate Data-driven Prognostics", *In IEEE International Conference on Prognostics and Health Management (ICPHM)*, 2023

L. Bull, D. Di Francesco, M. Dhada, O. Steinert, T. Lindgren, A. Parlikad, A. Duncan and M. Girolami, "Hierarchical Bayesian modeling for knowledge transfer across engineering fleets via multitask learning", *Computer-Aided Civil and Infrastructure Engineering*, 00, pp. 1–28, 2023

M. Dhada, A. Parlikad, O. Steinert and T. Lindgren, "Weibull recurrent neural networks for failure prognosis using histogram data", *Neural Computing and Applications*, 2023

Z. Kharazian, M. Rahat, F. Gama, P. S. Mashhadi, S. Nowaczyk, T. Lindgren, S. Magnússon, "AID4HAI: Automatic Idea Detection for Healthcare-Associated Infections from Twitter, a Framework Based on Active Learning and Transfer Learning", *International Symposium on Intelligent Data Analysis*, 2023

A. Kuratomi, I. Miliou, Z. Lee, T. Lindgren and P. Papapetrou, "JUICE: JUstIfied Counterfactual Explanations", *In Proceedings of Discovery Science.*, 2022

A. Kuratomi, E. Pitoura,P. Papapetrou, T. Lindgren,and P. Tsaparas, "Measuring the Burden of (Un)fairness Using Counterfactuals", *Machine Learning and Principles and Practice of Knowledge Discovery in Databases*, pp. 402–417, 2022

T. Lindgren and O. Steinert, "Low dimensional synthetic data generation for improving data driven prognostic models", *In IEEE International Conference on Prognostics and Health Management (ICPHM 2022)*, pp. 173–182, 2022

T. Lindgren, "Hybrid feature tweaking: Combining random forest similarity tweaking with CLPFD", *In 2021 7th International Conference on Computing and Data Engineering (ICCDE 2021)*, pp. 20–26, 2021

A. Kuratomi, T. Lindgren, and P. Papapetrou, "Prediction of Global Navigation Satellite System Positioning Errors with Guarantees", *Machine Learning and Knowledge Discovery in Databases: Applied Data Science Track (2021)*, pp. 562–578, 2021

L. Zed, A. Nicholas, P. Papapetrou, and T. Lindgren, "Z-Hist: A Temporal Abstraction of Multivariate Histogram Snapshot", *In Proceedings of the Advances in Intelligent Data Analysis XIX (IDA) , Springer Internationl Publishing*, pp. 376–388, 2021.

L. Zed, T. Lindgren, and P. Papapetrou, "Z-Miner: an efficient method for mining frequent arrangements of event intervals", *KDD '20: Proceedings of the 26th ACM SIGKDD International Conference on Knowledge Discovery & Data Mining (2020)*, pp. 524–534, 2020

M. Mammo and T. Lindgren, "Evaluation of Dimensionality Reduction Techniques-Principal Feature Analysis in case of Text Classification Problems", *In Proceedings of the 6th International Conference on Computing and Data Engineering (ICCDE)*, Association for Computing Machinery, New York, NY, USA, 75–79, 2020

RESEARCH COUNCIL FUNDS

Project leader from DSV

2023 - today, 4.8 M€, EFRA - Extreme Food Risk Analytics, funded by EU

2022 - today, 19.5 MSEK, RAPIDS - Reliable Adaptive Predictive maintenance and Intelligent Decision Support, funded by Vinnova

2017 - 2021, 18.2 MSEK, CODA - Predictive models with interpretability and concept drift analytics, funded by Vinnova

2012 - 2017, 23.7 MSEK, IRIS - Integrerat dynamiskt prognostiserande underhållsstöd, funded by Vinnova

REVIEW ASSIGNMENTS (LAST FIVE YEARS)

Conference program committees

2025, The European Conference on Machine Learning and Practice of Knowledge Discovery in Databases (ECML PKDD)

2025, Journal of Engineering Failure Analysis

2024, Journal of Engineering Failure Analysis

2024, The European Conference on Machine Learning and Practice of Knowledge Discovery in Databases (ECML PKDD)

2024, The International Joint Conferences on Artificial Intelligence (IJCAI)

2023, Expert scientific reviewer for the docent application of Yuhong Li)

2023, EURASIP Journal on Advances in Signal Processing

2023, Journal of Data Mining and Knowledge Discovery (DAMI)

2023, Scientific reviewer for the research project Efficient and Trustworthy Industrial AI (ETIAI)

2023, The International Joint Conferences on Artificial Intelligence (IJCAI)

2022, The Asian Conference on Intelligent Information and Database Systems (ACIIDS)

2022, The International Conference on Computing and Data Engineering (ICCDE)

2022, IEEE International Conference on Prognostics and Health Management (ICPHM)

2022, The International Joint Conferences on Artificial Intelligence (IJCAI)

2022, The European Conference on Artificial Intelligence (ECAI)

2022, The 3rd International Conference on Artificial Intelligence in Electronics Engineering (AIEE)

2021, The Asian Conference on Intelligent Information and Database Systems (ACIIDS)

2021, The 2nd International Artificial Intelligence and Blockchain Conference (AIBC)

2021, The International Joint Conferences on Artificial Intelligence (IJCAI)

2020, IEEE Transactions on Cybernetics

2020, The International Joint Conferences on Artificial Intelligence (IJCAI)

2020, Pacific Rim International Conferences on Artificial Intelligence (PRICAI)

2020, The International Conference on Computing and Data Engineering (ICCDE)

OPPONENT / EXAMINER ASSIGNMENTS

Grading committee

2024, Part of the grading committee of Mahbub Ul Alam thesis defence with the title ”Advancing Clinical Decision Support Using Machine Learning & the Internet of Medical Things: Enhancing COVID-19 & Early Sepsis Detection”

2023, Chair on Thomas Vakili’s licentiate thesis defence with the title ”Attacking and Defending the Privacy of Clinical Language Models”

2023, Opponent on Xin Tao’s thesis defence with the title ”Application of Integrated Vehicle Health Management in Automated Decision-making for Driverless Vehicles”

2021, Part of the grading committee of Henrik Linussons PhD defence of his thesis with the title ”Nonconformity Measures and Ensemble Strategies: An Analysis of Conformal Predictor Efficiency and Validity”

2021, Mid-term seminar opponent for Kazi Masum Sadique mid-term report with the title ”Securing the Internet of Things (IoT) using Decentralized Trust and Identity Management”

2020, Part of the grading committee of Rebecca Weegars PhD defence of her thesis with the title ”Mining Clinical Text in Cancer Care”

2015, Pre-doctoral opponent for Aron Henrikssons PhD thesis with the title ”Ensembles of Semantic Spaces: On Combining Models of Distributional Semantics with Applications in Healthcare”

PATENT

Förfarande och system för felsökning av en påbyggnationsfunktion vid fordon, Publication number: SE 536187, Inventor: Johan Aneros and Tony Lindgren

Method and system for prediction of a drainage valve malfunction probability, Publication number: SE 1651266, Inventor: Samia Khalid, Jonas Biteus, Martin Eineborg and Tony Lindgren

Method and control arrangement for prediction of a wheel bearing unit of an axel in a vehicle, Publication number: SE 541828C2, Inventor: Olof Steinert, Jonas Biteus, Isolde Snellman, Fredrik Holmer, Sara Sylvan, Anette Hultåker and Tony Lindgren

PEDAGOGICAL ACHIVEMENTS (LAST FIVE YEARS)

Tony Lindgren has been involved in numerous courses. He has developed some of the listed courses from scratch. He has also lectured, administrated, supervised and held seminars for different sizes of student goups ranging from individual students to 300 students.

Course responsible or shared course responsibility

2023 Principles and Foundations of Artifical Intelligence (PFAI), 7.5 ECTS, 90 students

2022 Principles and Foundations of Artifical Intelligence (PFAI), 7.5 ECTS, 60 students

2021 Principles and Foundations of Artifical Intelligence (PFAI), 7.5 ECTS, 60 students

Involved in courses

2025 Logik för datavetare, 7.5 ECTS

2024 Logik för datavetare, 7.5 ECTS

2023 Logik för datavetare, 7.5 ECTS

2022 Machine Learning, 7.5 ECTS

2022 Logik för datavetare, 7.5 ECTS

2021 Logik för datavetare, 7.5 ECTS

2020 Logik för datavetare, 7.5 ECTS

Course material

Tony has produced lecture slides as well as exercises and solutions to the exercises. He has also developed software to be used in the mentioned excersises.

Pedagogical education

Tony has completed the the courses below and are participating in pedagogical seminars at Department of computer and Systems Sciences at Stockholm University.

2020 Research supervision in theory and practice, 3 ECTS

2012 Universitetspedagogik 2 (UP 2), 3 ECTS

2004 Universitetspedagogik i teori och praktik del 1 (UPiToP 1), 3 ECTS

ACADEMIC SUPERVISION (LAST FIVE YEARS)

Degree projects

2024, Michelle Kim, Optimizing Transport Mission Planning with Large Language Models - A Comparative Analysis of the Traveling Salesman Problem, 15 credits

2024, Wenshi San, Explainable Anomaly Detection in Predictive Maintenance Using Shapelet Transform - Application in heavy vehicle components failure prediction, 15 credits

2024, Fatanhe Hasani and Mohammad Mohammadi, Artificiell Intelligens inom företagsförvärv, 30 credits

2024 Woxue Tang and Jiayuan Wei, Evaluation and Implementation of Developer Velocity Index, 30 credits

2023 Tara Helena Irene de Groot and Laureanne Antoinette Josephine Brechje Geraldine van Dijk, Automatic Detection of Tumor Infiltrating Lymphocytes in Breast Cancer Slides, 15 credits

2023 Björn Leickert, Development of an AI Model for an integrated cloud and edge environment with IIoT data, 15 credits

2023 Swathi Rao Hampapura Sripada and Deepthy Prasad, Interpretability methods for neural network-based anomaly detection, 30 credits

2023 Ilya Smelyanskiy, Transformer models for tag generation on small texts, 30 credits

2022 Fredrik Marthinsen, Artificial Intelligence in Health Care, 30 credits

2022 Johan Klenner, Major cyber security challenges for augmented reality, 15 credits

2022 Simon Rahnasto och Johannes Gür, Ett binärt sökträd som dynamiskt ordnar element efter sökfrekvens, 15 credits

2022 Anna Nilsson och Malin Rydefalk, Verksamheters medvetenhet angående solcellsanläggningars cybersäkerhet, 15 credits

2022 Christopher Johnsson och Jacob Mannehed, Harmonization of DLT and IoT, 15 credits

2022 Jasmine Ek och Ebba Parhammar, Biometrics: informationssäkerhetens framtid, 15 credits

2022 Vijay Parthasarathy and Venkata Yedida, Impact of AI and Machine Learning Models on Society, 30 credits

2022 Karl Bivstedt and Michelle Torlén, We have the data - now what?, 30 credits

2022 Mehwish Manzoor, Smarthome Security, 30 credits

2022 Yavnika Yavnika, GHG emission assessment of IT systems from autonomous vehicles in use phase, 30 credits

2021 Zhenggang Gao and Xinying Huang, Design of machine learning-based music recommender systems, 30 credits

2021 Büsra Olgun, High Quality Data Query System for Wave Energy Assessment, 30 credits

2021 Jie Cao, Explainable Models for Predictive Maintenance, 30 credits

2021 Aia Izeldin and Wendy Zhu, Online undervisnings påverkan på studenters betyg - En kvantitativ och kvalitativ undersökning på Data- och systemvetenskapliga institutionen, 15 credits

2021 Max Lindgren and Jens Jacobsson, Sports analytics and Machine - Learning Using machine learning to classify football player tracking data, 15 credits

2020 Jonathan Bärlund, Techniques to Analyze Histogram Data - Handling Histogram Data Using a Multilayered Perceptron Network in each Node of a Decision Tree, 30 credits

2020 Aparna Ajit and Mattias Chavez de la Vega, Handling missing feature values in histogram data - Is there a specific approach to follow when facing histogram data?, 30 credits

EDUCATIONAL ADMINISTRATION

Unit head

Tony has been the head for the Unit of Systems Analysis and Security at DSV, Stockholm University during 2019 - present time.

Programme coordinator

Tony has been programme coordinator for the Computer and Systems Sciences batchelor programme at Stockholm University during 2007 - 2008 and from 2015 - 2025.

BOARD WORK

2012 - present time, Chairman of the bord of SWL - Solutions with Logic

PROGRAMMING SKILLS

Languages

JAVA, PROLOG, C, C++, C#, PASCAL, SQL

OTHER INFORMATION

Awards

2022 · The paper *Low dimensional synthetic data generation for improving data driven prognostic models* was awarded the title *Best Industry Paper* at IEEE International Conference on Prognostics and Health Management (ICPHM)

2016 · The oral presentation of the paper *Indexing rules in rule sets for fast classification* was selected as the *best presentation* at the International Conference on Artificial Intelligence and Robotics (ICAIR)

2004 · The paper *Methods for Rule Conflict Resolution* was awarded the title *Best Student Paper* at European Conference of Machine Learning

Moderator

2022 · Moderator for the topic *AI innovation moving forward* at Stockholm Tech Live

Invited talk

2025 · Gave a talk about *The value of industrial data and how to share it* at the 6th

International Conference on Artificial Intelligence in Electronics Engineering (AIEE 2025) in Bangkok, Thailand

2020 · Gave a talk about *AI and the future labour market* at the Institute for Social Research - the Unit for Labour Market Knowledge (AKPA) on their 50th anniversary

2008 · Gave a talk about *Data Mining* at the Swedish Institute for Infectious Disease Control

Languages

Swedish · Mothertongue

English · Intermediate (conversationally fluent)

Interests

Windsurfing · Cooking · Running

March 14, 2025