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March 7, 2025

Master Thesis Supervision at Aalto Univerity

1. A. Hämäläinen, *Building and evaluating a Retrieval Augmented Generation system*, ongoing.
2. M. Shaikhum, *Decentralized Federated Learning for Mobile Devices*, ongoing.
3. S. Rachidi, *Explainable machine learning in cancer survival prediction*, ongoing.
4. M. Malkki, *Predicting vehicle price*, ongoing.
5. M. Saska, *Forecasting seasonality in financial data with machine learning methods*, ongoing.
6. J. Naveed, *Code Generation in Building Information Modeling (BIM) Applications using Retrieval-Augmented Generation with Large Language Models*, ongoing.
7. E. Kohvakka, *Outperforming SP500 with machine learning portfolios*, ongoing.
8. A. Sarkima, *Log-based anomaly detection in 5G L3 deployment unit using GNNs*, ongoing.
9. O. Lauronen, *AI tool for a company's internal support ticket system*, industry: Polycon Oy, ongoing.
10. P. Wiwatphonthana, *Machine Learning Assisted Dynamic Scheduling for Energy Efficient Serverless Cloud Workloads*, industry: Ericsson Oy, Jan. 2025. `https://urn.fi/URN:NBN:fi:aalto-202501282068`
11. Q. Diem Luong, *Proof of Concept for FedRelax on Kubernetes: An Implementation Guide*, Jan. 2025. `https://urn.fi/URN:NBN:fi:aalto-202501282110`
12. P. Dang, *Model-Agnostic Personalized Federated Learning using Adaptive Client Selection* , Jan. 2025. `https://urn.fi/URN:NBN:fi:aalto-202501302237`
13. L. Loukamo, *The effect of language on perceived ability to understand machine learning concepts*, Dec. 2024. `https://urn.fi/URN:NBN:fi:aalto-202502072365`
14. I. Tarpila, *Training Machine Learning Models for E-sports Spatiotemporal TimeSeries Forecasting*, Nov. 2024. `https://urn.fi/URN:NBN:fi:aalto-202412177981`.
15. I. Lahtinen, *Binary classification of invoice documents based on value added tax*, industry: KPMG Oy Ab, Nov. 2024. `https://urn.fi/URN:NBN:fi:aalto-202412178013`.
16. R. Kausiala, *Predicting retail investor fund flow using machine learning*, Nov. 2024. `https://urn.fi/URN:NBN:fi:aalto-202412177992`.

17. V. Toivonen, *Determining User Preference Profiles from Email And User Engagement Data*, industry: Vibemetrics Oy, Oct. 2024. https://urn.fi/URN:NBN:fi:aalto-202412178014

18. M. Hilvo, *The effect of privacy enhancing technologies on the quality of predictive models in healthcare*, industry: VTT, Oct. 2024. https://urn.fi/URN:NBN:fi:aalto-202411217279

19. A. Raghavendra Bhat, *Classifying Scam E-Commerce Shops with Supervised Learning*, industry: F-Secure, Oct. 2024.

20. A. Rodimov, *Security system based on object tracking by video stream*, Aug. 2024. https://urn.fi/URN:NBN:fi:aalto-202408265859

21. A. Shuianova, *Kinship verification between two people by photos*, Aug. 2024. https://urn.fi/URN:NBN:fi:aalto-202408265860

22. J. Rantanen, *Large Language Models in Mental Health Support*, July 2024. https://urn.fi/URN:NBN:fi:aalto-202408255774

23. R. Mård, *Backdoor attacks on large transformer-based regression model*, July 2024. https://urn.fi/URN:NBN:fi:aalto-202408255769

24. A. Ghazal, *Zero-shot Machine Unlearning using GANs*, industry: Nokia, July 2024. https://urn.fi/URN:NBN:fi:aalto-202406305007

25. K. Nguyen, *Image Similarity Assessment for Product Quality Assurance*, July 2024. https://urn.fi/URN:NBN:fi:aalto-202408255659.

26. D. Suman, *Deep Learning Methods for Demand Time Series Forecasting*, industry: Zalando, June 2024. https://urn.fi/URN:NBN:fi:aalto-202406234851

27. A. Manninen, *Spatiotemporal Traffic Accident Prediction Using Deep Learning Models*, May 2024. https://urn.fi/URN:NBN:fi:aalto-202406234904

28. S. Hirvonen, *Comparison of data-driven models for building energy load forecasting*, industry: VTT, May 2024. https://urn.fi/URN:NBN:fi:aalto-202405263697

29. L. Ban, *Neural Motif Counting in Uncertain Graphs*, May 2024. https://urn.fi/URN:NBN:fi:aalto-202405263699

30. R. Virtanen, *Explainable AI Techniques in Trustworthy Object Detection*, industry: TietoEVRY Oyj, May 2024. https://urn.fi/URN:NBN:fi:aalto-202405263770.

31. T. Kulokoski, *How well can Machine Learning teach Humans about Machine Learning?*, Mar. 2024. https://urn.fi/URN:NBN:fi:aalto-202403172727.

32. S. Facchini, *Predicting Fuel Usage in Airline Industry*, industry: Finnair, Mar. 2024. https://urn.fi/URN:NBN:fi:aalto-202403172740

33. L. Veneranta, *Optimization of Web Page Advertisements using Contextual Bandits*, industry: Sanoma Media, Jan. 2024. https://urn.fi/URN:NBN:fi:aalto-202401282006 

34. J. Li, *Empirical Emissions Modeling using Machine Learning*, industry: aurobay.com, Jan. 2024. https://urn.fi/URN:NBN:fi:aalto-202401281970 

35. K. Izadi Garmaseh, *Frequency Offset Estimation Using Deep Learning*, industry: Nokia, Jan. 2024. https://urn.fi/URN:NBN:fi:aalto-202401282059 

36. S. Chowdhury, *Safety-focused multi-object detection and tracking in industrial settings leveraging private 5G-network technology*, Jan. 2024. industry: TietoEVRY Oyj. https://urn.fi/URN:NBN:fi:aalto-202401282114 

37. T. Kontola, *Predicting User Web Behaviour with Machine Learning Methods*, industry: Columbia Road Oy, Jan. 2024. https://urn.fi/URN:NBN:fi:aalto-202401282008 

38. R. Siljander, *Extreme gradient boosting methods for covariate forecasting of housing market demand in Finnish postal code areas*, industry: Alma Talent Oy, Dec. 2023. https://urn.fi/URN:NBN:fi:aalto-202312187385 

39. J. Jäkärä, *From Candles to Ticks - Improving financial backtesting accuracy*, industry: Aekos Trading Oy, Dec. 2023. https://urn.fi/URN:NBN:fi:aalto-202312187389 

40. X. Landa Oregi, *MLOps data ingestion pipeline for reciprocal benefit between customer and provider*, industry: Huawei, Nov. 2023. https://urn.fi/URN:NBN:fi:aalto-202401071333 

41. T. Brumani, *Microservices-Based Anomaly Detection for Mobile Network Observability*, industry: Ericsson Oy, Sept. 2023. https://aaltodoc.aalto.fi/items/747916fb-98a1-4195-93a6-841cf0b6be71 

42. G. Rivi, *Software Defined Networking Controlled Energy Optimization through Traffic Prediction on Microwave Access Network*, industry: Ericsson Finland, Sept. 2023. https://aaltodoc.aalto.fi/items/f3545faf-7aec-4453-b123-6be572a0ac80 

43. Ã. García Gutiérrez, *Anomaly Detection on Osmosis Trades*, industry: Numia Data, Sep. 2023. https://aaltodoc.aalto.fi/items/0c0526a5-b55e-432f-9d03-f265f0df63d1 

44. Z. Liu, *Deep Learning based method for Fire Detection*, industry: Detectium, Sept. 2023. https://aaltodoc.aalto.fi/items/e721634e-004a-4a29-b018-1d41a17d33e8

45. M. Bogdanova, *Contextual bandits to improve staffing in consulting companies*, industry: available on request, Sept. 2023. https://aaltodoc.aalto.fi/items/041f9210-3920-43fa-b4b7-dda5de9079f7

46. Y. SarcheshmehPour, *Application of Reinforcement Learning in Electrical Machine Design*, industry: ABB Oy, Aug. 2023. https://aaltodoc.aalto.fi/handle/123456789/122863

47. L. G. Tejada, *Applying Machine Learning to Forecast Formula 1 Race Outcomes*, Aug. 2023. https://aaltodoc.aalto.fi/handle/123456789/122937

48. C. Segercrantz, *Experimental evaluation of record linkage algorithms in a secure banking environment*, industry: Nordea Bank Oyj, Aug. 2023. https://aaltodoc.aalto.fi/handle/123456789/123205

49. H. Wang, *Material Capture and Generative Rendering with Phenomenological Reflectance Models*, industry: Huawei, Aug. 2023. https://aaltodoc.aalto.fi/handle/123456789/122900

50. G. Jiang, *Parallel Training of Neural Networks in 6G L1*, industry: Nokia Oy, Aug. 2023. https://aaltodoc.aalto.fi/handle/123456789/122835

51. K. Lasocki, *Deep Learning for generating continuous melodies conditioned on lyrics and initial melodies*, Aug. 2023. https://www.finna.fi/Record/aaltodoc.123456789_122794

52. T. Vanhala, *Data-driven xVA exposure calculation for a portfolio of interest rate swaps*, industry: Nordea Markets, May 2023. https://aaltodoc.aalto.fi/handle/123456789/120932

53. A. Agisheva, *Reviewer Ethics in Machine Learning Research*, May 2023. https://aaltodoc.aalto.fi/handle/123456789/120999

54. R. Tikkanen, *Machine learning for Fitness Tracker Data Integration*, industry: https://fjuul.com/, May 2023.

55. T. Hung Vu, *Deep learning-based Mammography Image Segmentation*, Mar. 2023. https://aaltodoc.aalto.fi/handle/123456789/120211 Planmed

56. S. Johansson, *Classification of Purchase Invoices to Analytic Accounts with Machine Learning*, Jan. 2023. https://aaltodoc.aalto.fi/handle/123456789/119486 SprintIT

57. T. Sormunen, *Pallet Detection in Warehouse Environment*, industry: https://www.wartsila.com/, Jan. 2023. https://aaltodoc.aalto.fi/handle/123456789/119397 WÄRTSILÄ

58. J. Himanen, *Towards a data-driven circular economy: predicting material streams in the construction industry*, Jan. 2023. https://aaltodoc.aalto.fi/handle/123456789/119342 adesso 10 01 LAKES

59. T. Rahman, *Intrusion Detection system based on Deep Learning*, Aug. 2022. https://aaltodoc.aalto.fi/handle/123456789/116391 SECCLO Master's Programme in Security and Cloud Computing Co-funded by the Erasmus+ Programme of the European Union

60. T. Gyabaah, *Artificial intelligence to support NFTs creation: Comparison of Machine learning algorithms to detect fraud in artwork*, industry: https://www.blankt.com/, Jul. 2022. https://aaltodoc.aalto.fi/handle/123456789/116504 b.

61. J. Lillfors, *Networked Federated Learning*, Jul. 2022. https://aaltodoc.aalto.fi/handle/123456789/116275

62. A. C. Barcsa-Szabo, *Feature-based Approaches for Ethical News Personalization*, industry: Sanoma Media Finland (https://media.sanoma.fi/), Jul. 2022. https://aaltodoc.aalto.fi/handle/123456789/116478 sanoma

63. C. Molinero Ranera, *Multi-label classification of a hydraulic system using Machine Learning*, Jul. 2022. https://aaltodoc.aalto.fi/handle/123456789/116308

64. V. Petrutiu, *Exploring Transformers and Degradation Methods in the Super Resolution Field*, industry: Huawei, Jul. 2022. https://aaltodoc.aalto.fi/handle/123456789/118298 HUAWEI

65. P. Truong, *Crown-of-Thorns Starfish detection by state-of-the-art YOLOv5*, Jul. 2022. https://aaltodoc.aalto.fi/handle/123456789/116281

66. Y. Huang, *Text analysis of novel coronavirus pneumonia based on federal deep learning*, June 2022. https://aaltodoc.aalto.fi/handle/123456789/115546

67. C. Ozen, *A collaborative approach for large-scale Electricity consumption using Federated Learning*, June 2022. https://aaltodoc.aalto.fi/handle/123456789/115282

68. P. Prinsen, *Robust Gas pressure control using Neural Networks*, industry: Wärtsilä Finland Oy, Jan. 2022. https://aaltodoc.aalto.fi/handle/123456789/112627

69. E. Hattula, *Transfer Learning Technology for Building Extraction from Orthophotos and Open-Source Data*, industry: National Land Survey of Finland (https://www.maanmittauslaitos.fi/en), Jan. 2022. https://aaltodoc.aalto.fi/handle/123456789/112450

70. A. Channabasaiah, *Applying machine learning methods to predict taxi pickups using historical taxi data*, Jan. 2022. https://aaltodoc.aalto.fi/handle/123456789/112871

71. R. Hellström, *Aspect Based Sentiment Analysis in Finnish*, industry: Crowst Oy, Jan. 2022. https://aaltodoc.aalto.fi/handle/123456789/112857

72. M. Leinonen, *Federated Multi-task Learning over Networked Data*, June 2021. https://aaltodoc.aalto.fi/handle/123456789/108261

73. M. Uutaniemi, *Extraction of labeled fields from images of structured documents*, Aug. 2021. https://aaltodoc.aalto.fi/handle/123456789/109305

74. A. Orre, *Pedestrian movement analysis from drone perspective*, Dec. 2021. https://aaltodoc.aalto.fi/handle/123456789/111730

75. P. Vijayakrishnan, *Semi-supervised machine learning techniques for infant motility classification*, Oct. 2021. https://aaltodoc.aalto.fi/handle/123456789/110565

76. J. Seppälä, *Application of machine learning to link click predictions in Facebook Family of Apps advertising*, 2021. https://aaltodoc.aalto.fi/handle/123456789/106829

77. K. Kutlu, *Machine Learning based Chaos Engineering for Cloud-Native Microservice Architectures*, industry: Ericsson, Aug., 2021. https://aaltodoc.aalto.fi/handle/123456789/109355

78. K. Ariko, *Increasing the safety in the proximity of the mobile working machines: a study of detecting people*, industry: Epec Oy, Oct. 2021. https://aaltodoc.aalto.fi/handle/123456789/110498

79. M. Afteniy, *Predicting time series with Transformer*, May, 2021. https://aaltodoc.aalto.fi/handle/123456789/107662

80. Z. Mohammadi, *Better Utilization of Relational Data in Machine Learning*, industry: Lamia Oy, May, 2021. https://aaltodoc.aalto.fi/handle/123456789/107604

81. T. Nguyen, *Applying Machine Learning to Develop Black-box Control Model of Active Double-Skin Facade*, Aalto U., Jan., 2021. co-supervised with Prof. H. Ihasalo, https://aaltodoc.aalto.fi/handle/123456789/102547

82. P. Pyrrö, *AIR: Aerial Inspection RetinaNet for Land Search and Rescue Missions*, industry: Accenture, Jan., 2021, https://aaltodoc.aalto.fi/handle/123456789/112856 

83. T. Kokkonen, *Classifying Restaurant Menu Items With Supervised Learning*, Jan. 2021. https://aaltodoc.aalto.fi/handle/123456789/102433

84. C. Dikmen, *Application of Contextual Bandits Models in a Supervised Learning Setting*, ,Aug. 2020. https://aaltodoc.aalto.fi/handle/123456789/46314 

85. J. Laiho, *Recognizing Thoughts from Bioelectric Patterns? A Brain-Computer Interface with Deep Learning*, industry: Accenture Liquid Studio (NL), Aalto U., Aug., 2020. https://aaltodoc.aalto.fi/handle/123456789/46105 

86. X. Zhang, *Diagnostic and Prognostic Analysis Optimization of Field Problems for EV Charging Stations*, industry: ABB, Aug., 2020. https://aaltodoc.aalto.fi/handle/123456789/46045 

87. T. Hämmäinen, *Clustering IoT devices for network intrusion detection systems*, industry: Ericsson, May, 2020. https://aaltodoc.aalto.fi/handle/123456789/44266 

88. T. Valentijn, *The Practical Applicability of a CNN for Automated Building Damage Assessment*, industry: Red Cross NL (https://www.510.global/), June, 2020. co-supervised with Dr. Jorma Laaksonen, https://aaltodoc.aalto.fi/handle/123456789/44991 

89. J. Nieminen, *Framework for application of machine learning algorithms in telecommunications*, Nokia Oy, Mar. 2020. https://aaltodoc.aalto.fi/handle/123456789/43572 

90. M. Mishin, *Anomaly Detection Algorithms and Techniques for Network Intrusion Detection Systems*, Ericsson, Aug. 2020. https://aaltodoc.aalto.fi/handle/123456789/46076 

91. D. Tokmurzina, *Road marking condition monitoring and classification using deep learning for city of Helsinki*, Oct. 2020. https://aaltodoc.aalto.fi/handle/123456789/47388 

92. I. Vikström, *Deep reinforcement learning approach for HVAC control*, industry: TietoEVRY Oyj, Dec. 2020. https://aaltodoc.aalto.fi/handle/123456789/97613 

93. K. Klemets, *Forecasting Hourly Parking Occupancy with Multiple Seasonalities*, industry: City of Helsinki, Aug. 2020. https://aaltodoc.aalto.fi/handle/123456789/45990 

94. J. Moisala, *Optimizing the mark-up of foreign exchange derivative contracts using machine learning*, May 2020. https://aaltodoc.aalto.fi/handle/123456789/44353

95. L. Kolehmainen, *A web scraping system for extracting news articles*, Vainu Finland Oy, Dec. 2019. https://aaltodoc.aalto.fi/handle/123456789/41693 VAINU

96. T. Wiro, *Market influence on purchase prices in procurement*, industry: Sievo, June, 2019. https://aaltodoc.aalto.fi/handle/123456789/39059 Sievo

97. J. Eskonen, *Deep Reinforcement Learning in Automated User Interface Testing*, Ericsson, May, 2019. https://aaltodoc.aalto.fi/handle/123456789/37895 ERICSSON

98. A. Moskalev, *Demand forecasting for fast-moving products in grocery retail* , Relex, May, 2019, https://aaltodoc.aalto.fi/handle/123456789/37915 RELEX

99. D. Baad, *Automatic Job Skill Taxonomy Generation For Recruitment Systems*, VXT Research Oy, June, 2019. https://aaltodoc.aalto.fi/handle/123456789/38986 VXT RESEARCH

100. K. Karapetyan, *Process Mining of Automation Services with Long Short-Term Memory Neural Networks*, industry: Posti Group Oyj, March, 2019. https://aaltodoc.aalto.fi/handle/123456789/37178 posti

101. J. Kahles, *Applying Machine Learning to Root Cause Analysis in Agile CI/CD Software Testing Environments*, industry: Ericsson, Jan. 2019. https://aaltodoc.aalto.fi/handle/123456789/36347 ERICSSON

102. H. Ambos, *Semi-Supervised Learning over Complex Networks*, Mar. 2019. https://aaltodoc.aalto.fi/handle/123456789/37130

103. M. Torres Porta, *Anti-Money Laundering system based on customer behavior*, Aug. 2019. https://aaltodoc.aalto.fi/handle/123456789/39938 FA SOLUTIONS eit Digital

104. A. Shehata, *Cellular Network Average User Throughput-Downlink Prediction by Machine Learning*, Nokia, Dec. 2018. https://aaltodoc.aalto.fi/handle/123456789/35471 NOKIA

105. O. Abramenko, *Graph signal sampling via reinforcement learning*, Nov. 2018. https://aaltodoc.aalto.fi/handle/123456789/34750

106. M.O. Nasir, *Supervised Learning in Lighting Control Systems*, Oct. 2018. https://aaltodoc.aalto.fi/handle/123456789/34394

107. D. Wu, *Unsupervised Learning for Lighting Control System*, Helvar Oy, Oct. 2018. https://aaltodoc.aalto.fi/handle/123456789/34384 Helvar

108. N. Pokhrel, *Drone Obstacle Avoidance and Navigation Using Artificial Intelligence*, industry: Nokia, May 2018. https://aaltodoc.aalto.fi/handle/123456789/31561 NOKIA

109. D. Koskeniemi, *Do financial networks improve the explanatory power of the Fama-French factors? A comparison of propagation algorithms on stock market returns* , Mar. 2018. https://aaltodoc.aalto.fi/handle/123456789/30542

110. S.B. Jahromi, *Compressed Sensing for Big Data Over Complex Networks*, Jan. 2018. https://aaltodoc.aalto.fi/handle/123456789/29671

111. A. Mara, *A Comparative Analysis of Graph Signal Recovery Methods for Big Data Networks*, Oct. 2017. https://aaltodoc.aalto.fi/handle/123456789/28567

112. Y. Gao, *Graphical Model Selection in Big Data Application*, Dec. 2016. https://aaltodoc.aalto.fi/handle/123456789/23908

Master Thesis Supervision at TU Vienna

1. B. Kausl, *Channel aware inference based on the Fisher information*, TU Vienna, 2012. co-supervised with Prof. Franz Hlawatsch,, http://hdl.handle.net/20.500.12708/8885