

NOPPARAT KAAKKURIVAARA

ASSOCIATE PROFESSOR
DEPARTMENT OF FOREST ENGINEERING
FACULTY OF FORESTRY
KASETSART UNIVERSITY

CAREER OVERVIEW

I work as an associate professor specializing in teaching and conducting research in the field of forest technology. Additionally, I have expertise in forest certification auditing.

KEY COMPETENCIES

- Forest Harvesting
- Sustainable Forest Operations
- Operations Research in Forestry
- Forest Machinery
- Work Safety

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ACADEMIC BACKGROUND

Post-Doctoral

2015-2016

University of Natural Resources and Life Sciences, Austria

Granted by Austria's Agency for Education and Internationalisation (OeAD)'s scholarship for 6 months

Doctoral Degree

2009-2014

D.Sc. (Agriculture and Forestry) University of Helsinki, Finland

Granted by The Office of the Civil Service Commission (OCSC), Thailand

Master Degree

2006-2008

M.Sc. (Agriculture and Forestry), University of Joensuu, Finland

Granted by Erasmus Mundus

Bachelor's Degree

2000-2004

B.Sc. (Forestry) with second class honor, Kasetsart University, Thailand

PROFESSIONAL EXPERIENCES

Academic

IUFRO Officeholder serve as Division 3.03.00
Forest Ergonomics Coordinator
2024-Present

Associate Editor International Journal of Forest Engineering
2020-Present

Teaching and conducting research In Forest Engineering Department, Kasetsart University
2005-Present

Guest Editor on Special Issue entitled "Machine Learning and Big Data Analytics in Forestry, Forests, MDPI
2023-2024

Collections Editor on Sustainable Development Goals: Forest Engineering, International Journal of Forest Engineering
2023

EXECUTIVE POSITION

Deputy Director

Deputy Director of Research and International Affairs

Kasetsart University Research and Development Institute
2023-2025

Vice Dean

Vice Dean of Innovation Development and Organization Communication

Faculty of Forestry, Kasetsart University
2021-2022

Head of Department

Head of Forest Engineering Department

Faculty of Forestry, Kasetsart University
2017-2020

CONSULTANT

Consultant for **Efficient Teak Wood Transportation and Processing** under the ITTO-BMEL entitled "Promoting Quality Timber Production in Smallholders and Community-based Teak and Other Valuable Species Plantations in the Tropics". PP-A/54-331A
2023-2026

Consultant for **Minimize Harvesting Loss, Efficient Transport and Processing of Teak Round-wood**. Under the ITTO's project entitled "Enhancing Conservation and Sustainable Management of Teak Forests and Legal and Sustainable Wood Supply Chains in the Greater Mekong Sub-region". PP-A/54-331
2019-2021

MOBILITIES

Erasmus Mundus+ Mobility

Czech University of Life Sciences Prague, Prague, Czech Republic
November 2023

Erasmus Mundus+ CBHE

The FRAME Project (Forests, climate change mitigation and adaptation: Higher Education Cooperation in Mekong region)
Erasmus+ Key Action 2: Capacity Building in the field of Higher Education
618803-EPP-1-2020-1-FI-EPPKA2-CBHE-JP
Coordinator of Kasetsart University
November 2020 - November 2023

Erasmus Mundus+ Mobility

Mendel University, Brno, Czech Republic
November - December 2019
November 2018
September 2017

COMMITTEE

Nation Technical Subcommittee for Sustainable Forest Management
2021

Steering Committee of Thailand Forest Certification Council
2019-Present

PUBLICATIONS

Borz, S. A., Forkuo, G. O., Kaakkurivaara, T., & Kaakkurivaara, N. (2026). Estimating the conversion factors for solid wood based on smartphone LiDAR in Thailand: a case study of high-value teak log piles in Thailand. **Australian Forestry**, 1–12. <https://doi.org/10.1080/00049158.2026.2718456>

Palátová P, Rinn R, García-Jácome SP, Purwestri RC, Kaakkurivaara N, Lovrić N, Kaputa V, Marcinekova L, Potkány M, Giertlová B, Sharp A, Wangpakapattanawong P, Zemánek T, Meňházová J, Zvěřina L, Van MV, Nhat MDT, Ninchaleune B, Chanthavong I, Doungmala K and Jankovský M (2026) Perspectives on the forest bioeconomy: insights of stakeholders from cases in Central Europe and the Mekong region. **Front. For. Glob. Change** 9:1829838. doi: 10.3389/ffgc.2026.1829838

Intim, N., Duangjai, W., Diloksumpun, S., Kaakkurivaara, T., & Kaakkurivaara, N. (2026). Carbon footprint of teak plantation management in Thailand using life cycle analysis. **Asian Journal of Forestry**. Advance online publication. <https://doi.org/10.13057/asianjfor/r100129>

Wongnaikot, P., Kaakkurivaara, N., Thammajit, N., Panyain, N., Yoojongdee, T., & Meunpong, P. (2026). Evaluating wind load responses in tree crowns under different pruning techniques. **Arboricultural Journal**. Advance online publication. <https://doi.org/10.1080/03071375.2026.2646594>

Kaakkurivaara, T., Kaakkurivaara, N., & Borz, S. A. (2026). Productivity and efficiency of extracting small-sized eucalyptus logs by farm tractors with backhoe grapples in Thailand. **Croatian Journal of Forest Engineering**, 47(1), 1–14. <https://doi.org/10.5552/crojfe.2026.3605>

Reyes Robalino, A. A., Picchio, R., Proto, A. R., Kaakkurivaara, N., Venanzi, R., & Borz, S. A. (2025). Virtual reality simulators in the training process for forestry operators: Current state-of-art, challenges, and future perspectives. **Current Forestry Reports**, 11, Article 28. <https://doi.org/10.1007/s40725-025-00261-9>

Borz, S. A., Kaakkurivaara, T., Forkuo, G. O., & Kaakkurivaara, N. (2025). Activity recognition in motor-manual cross-cutting operations by machine learning on multimodal data. **Forest Science and Technology**. <https://doi.org/10.1080/21580103.2025.2543281>

Forkuo, G. O., Vass, B., Forika, A., Kaakkurivaara, N., Kaakkurivaara, T., & Borz, S. A. (2025). Accuracy and time efficiency of ForestScanner app when measuring plot-level DBH under diverse forest ecosystems. **Bulletin of the Transilvania University of Brasov, Series II: Forestry, Wood Industry, Agricultural Food Engineering**, 18(67)(1). <https://doi.org/10.31926/but.fwiafe.2025.18.67.1.2>

PUBLICATIONS

Forkuo, G. O., Marcu, M. V., Kaakkurivaara, N., Kaakkurivaara, T., & Borz, S. (2025). Human and machine reliability in postural assessment of forest operations by OWAS method: Level of agreement and time resources. **Forests**, 16(5), Article 0759. <https://doi.org/10.3390/f16050759>

Forkuo, G. O., Borz, S. A., Kaakkurivaara, T., & Kaakkurivaara, N. (2025). Postural Classification by Image Embedding and Transfer Learning: An Example of Using the OWAS Method in Motor-Manual Work to Automate the Process and Save Resources. **Forests**, 16(3), 492. <https://doi.org/10.3390/f16030492>

Patočka, Z., Petrovičová, L., Kaakkurivaara, N., Zemánek, T., & Kilimánek, M. (2024). Using a weighted Voronoi diagram for forest thinning proposals and skidding trail layouts for teak plantations in Thailand. **Bois et Forêts des Tropiques**, 361(360).

Kaakkurivaara, N., Na Takuathung, C., Diloksumpun, P., Yingdee, J., Jumwong, N., Meunpong, P., Sangvisitpirom P., Tangkit K., Neimsuwan T., Kaakkurivaara, T. (2024). Evaluating small-scale eucalyptus growers' experience of the EVO mobile application: a comparative analysis of quantitative and qualitative assessment techniques. **Forests, Trees and Livelihoods**, 1–18. <https://doi.org/10.1080/14728028.2024.2427176>

Neimsuwan, T., Tangkit, K., Na Takuathung, C., Kaakkurivaara, N., Meunpong, P., Jumwong, N., Sangvisitpirom, P., & Kaakkurivaara, T. (2024). Mechanical and physical properties of three Eucalyptus spp. clones planted in Thailand. **Journal of Forest Science**, 70(0), 00–00. <https://doi.org/10.17221/34/2024-JFS>

Kaakkurivaara, T., Borz, S. A., & Kaakkurivaara, N. (2024). Immersive virtual reality in forestry work – implementation for chainsaw training. **International Journal of Forest Engineering**, 1–7. <https://doi.org/10.1080/14942119.2024.2414694>

Meunpong, P., Sangvisitpirom, P., Tangkit, K., Kaakkurivaara, N., Neimsuwan, T., Na Takuathung, C., Kaakkurivaara, T., Jenke, M., & Jumwong, N. (2024). Biomass equations and annual growth of various Eucalyptus clones in commercial plantations across Thailand. **Trees, Forests and People**, 17, 100647. <https://doi.org/10.1016/j.tfp.2024.100647>

Premashtira, A.; Tangkit, K.; Lamaisri, W.; Kaakkurivaara, N.; Na Takuathung, C.; Neimsuwan, T.; Jumwong, N.; Meunpong, P.; Kaakkurivaara, T. Analyzing the Eucalyptus Timber Value Chain in Thailand: Profit Distribution and Opportunities for Improvement. **Forests** 2024, 15, 1047. <https://doi.org/10.3390/f15061047>

Kaakkurivaara, T., Korpunen, H. & Kaakkurivaara, N. 2024. Mobile App for Eucalyptus bucking —Value Chain Optimization for Smallholders. **Small-scale Forestry**. <https://doi.org/10.1007/s11842-024-09563-5>

Fulvio, D.F., Acuna, M., Ackerman, P., Ackerman, S., Spinelli, R., Abbas, D., Kaakkurivaara, N., Sánchez-García, S., Sebastião Guerra, S.P. 2024. Benchmarking operational conditions, productivity, and costs of harvesting from industrial plantations in different global regions, **International Journal of Forest Engineering**, DOI: [10.1080/14942119.2023.2296789](https://doi.org/10.1080/14942119.2023.2296789)

PUBLICATIONS

Grünberg, J., Ghaffariyan, M.R., Jourgholami, M., Labella E.R., Kaakkurivaara N., Rober R.C.G., Kuhmaier M. 2023. Criteria for Assessing the Sustainability of Logging Operations—A Systematic Review. **Current Forestry Reports**. <https://doi.org/10.1007/s40725-023-00198-x>

Borz, S.A., Secelean, V.-N., Iacob, L.-M., Kaakkurivaara, N. 2023. Bucking at Landing by a Single-Grip Harvester: Fuel Consumption, Productivity, Cost and Recovery Rate. **Forests** 14(3), 465. <https://doi.org/10.3390/f14030465>

Borz, S.A., Mariş, A.-C., Kaakkurivaara, N. 2023 Performance of Skidding Operations in Low-Access and Low-Intensity Timber Removals: A Simulation of Productivity and Fuel Consumption in Mature Forests. **Forests** 14(2), 265. <https://doi.org/10.3390/f14020265>

Kaakkurivaara N. Kaakkurivaara T., Ketkaew C., Sakulya T., Borz S.A. 2022. Modelling Productivity in Extraction Operations by Simulations Based on GNSS Documented Data: an Example From Skidding Teak Wood in Thailand. **Bulletin of the Transilvania University of Brasov Series II: Forestry, Wood Industry, Agricultural Food Engineering**. 15(64): 13-32. <https://doi.org/10.31926/but.fwiafe.2022.15.64.2.2>

Kaakkurivaara T., Borz S.A., Kaakkurivaara N. Risk Factors and Occupational Safety Failures in Forest Work in the Southeast Asian Region. **Forests** 2022(13) article id 2034. <https://doi.org/10.3390/f13122034>

Robb W., Zemanek T., Kaakkurivaara N. 2022. An Analysis of Chainsaw Operator Safety Between Asian and European Countries. **Croatian Journal of Forest Engineering** 43(2): 373-389. <https://doi.org/10.5552/crojfe.2022.1539>

Kaakkurivaara T., Kaakkurivaara N. 2021. Cost-efficiency and ergonomic study of two methods for planting Eucalyptus spp. seedlings in plantation forestry. **Silva Fennica** vol. 55 no. 4 article id 10580. <https://doi.org/10.14214/sf.10580>

Kaakkurivaara T., Kaakkurivaara N. 2019. Comparison of radio frequency identification tag housing in a tropical forestry work environment. **Australian Forestry**. 82(4): 181-188.

Kaakkurivaara N. 2019. Possibilities of using barcode and RFID technology in Thai timber industry. **Maejo International Journal of Science and Technology** 13(1): 29-41.

Hytonen J., Nurmi J., Kaakkurivaara N., Kaakkurivaara T. 2019. Rubber tree (*Hevea brasiliensis*) biomass, nutrient content, and heating values in Southern Thailand. **Forests** 2019(10): 638.

Plodchum N., Kaakkurivaara N., Arunpraparut W. 2019. Multicriteria Decision Analysis for Selecting the Sustainable Logging System in Teak Plantation. In **Proceedings of the 52 International Symposium on Forestry Mechanisation**, Sopron, Hungary.

Detkong N., Kaakkurivaara N., Poolsiri R. 2019. Application of modern technology for tree growth monitoring. In **Proceedings of the 52 International Symposium on Forestry Mechanisation**, Sopron, Hungary.

PUBLICATIONS

- Kaakkurivaara N., Rianthakool L., Na Takuathung C., Prasanai K. 2019. Applying the delphi method to select the sustainable forest harvesting system. *In* **Proceedings of the 52 International Symposium on Forestry Mechanisation**, Sopron, Hungary.
- Thongkam A., Kaakkurivaara N., Narangajavana P. 2019. Logging planning via aerial forest survey. *In* **Proceedings of the 52 International Symposium on Forestry Mechanisation**, Sopron, Hungary.
- Hytonen J., N. Kaakkurivaara, T. Kaakkurivaara, J. Nurmi. 2018. Biomass equations for rubber tree (*Hevea Brasiliensis*) components in Southern Thailand. **Journal of tropical Forest Science** 30(4): 588-596.
- Kaakkurivaara N. & K. Stampfer. 2018. Assessment for Improvement: Harvesting Operations in Small-Scale Forest on Thai Steep Terrain. **Small-scale Forestry** 17(2): 259-276.
<https://doi.org/10.1007/s11842-017-9386-x>
- Kaakkurivaara N & T. Kaakkurivaara. 2018. Productivity and cost analysis of three timber extraction methods on steep terrain in Thailand. **Croatian Journal of Forest Engineering** 39(2): 31-39.
- Kaakkurivaara N & T. Kaakkurivaara. 2018. Designing of RFID tag for timber industry traceability. *In* **Proceedings 6th of International Forest Engineering**. Rotorua, New Zealand. 16-19 April 2018.
- Rianthakool L., Kaakkurivaara N., Arunpraparut W., Diloksampan P. 2018. Supply chain operations in teak plantation. *In* **Proceedings 6th of International Forest Engineering**. Rotorua, New Zealand. 16-19 April 2018.
- Kaakkurivaara N. 2017. From theory to practice: RFID in Thai forestry businesses. **Journal of Tropical Forest Research** 1(1): 51-57.
- Kaakkurivaara N. 2017. Log chutes: an alternative for wood transporting on Thai steep terrain. *In* **Proceedings of Thai Forest Conference 2017**. Bangkok, Thailand
- Harnchana S., Kaakkurivaara N., Sayasoonthorn S. 2017. A study on influenced factors of timber extraction in order to apply for designing timber extraction tool in forest engineering. *In* **Proceedings of Thai Forest Conference 2017**. Bangkok, Thailand
- Kaakkurivaara N. 2015. Feasibility study of timber harvesting systems on steep terrain in Thailand. *In* **Proceedings of The 48th International Symposium on Forestry Mechanisation**. Linz, Austria.
- Manavakun N. 2014. A comparison of OWAS and REBA observational techniques for assessing postural loads in manual tree felling and processing. *In* **Proceedings of The 5th Forest Engineering Conference together with the 47th International Symposium on Forestry Mechanisation**. Gerardmer, France.
- Manavakun N. 2013. An OWAS-based analysis of motor manual timber harvesting operations. *In* **Proceedings of the International Conference on Forest Operations in Mountainous Conditions**. Honne, Norway.

PUBLICATIONS

Manavakun N. 2012. Improvement of Timber Harvesting System: Application of Discrete-Event Simulation in Eucalyptus Plantations. In Mezzinatne 25 Special issue Abstracts for international conferences organised by LSFRI Silava in cooperation with SNS and IUFRO OSCAR2. Riga, Latvia.

Manavakun N. 2012. Motor-manual CTL harvesting techniques of fast growing eucalyptus plantations – Thailand. In Proceedings of the FORMEC Forest Engineering symposium, Dubrovnik, Croatia

Manavakun N. 2012. Evaluation of work-related musculoskeletal disorders in eucalyptus harvesting operations: application of OWAS method. In Proceedings of International Ergonomic Workshop: Ergonomic Challenges in Future Forest and Forestry. Nagoya, Japan.

CERTIFICATES

Introduction to ISO/IEC 17021-1 Management System Certification

Organized by JAS-ANZ, Online course , 17 August - 16 September 2021

FSC Chain of Custody Lead Auditor

Organized by SCS Global Services, Online course, November 2020

ISO 19011 Lead Auditor

Organized by SCS Global Services, Online course, November 2020

FSC Forest Management Expert

Organized by NEPCon, Bogor, Indonesia, 20-24 November 2017

SAN Farm Auditor

Organized by Rainforest Alliance, Bali, Indonesia, 2-6 October 2017