

Matty Janssen

Curriculum vitae

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Professional experience

Current appointment

2018–present **Senior researcher**, *Chalmers University of Technology*, Göteborg, Sweden.

Responsible for carrying out Life Cycle Assessment (LCA) within two projects related to end-of-life management of Li-ion batteries from electric vehicles. Development of MSc-, PhD-, and professional level courses on prospective LCA within an European project (second use, material recycling). Participation in smaller research projects funded by e.g. f3, AoA Energy. Co-supervision of Frida Hermansson's PhD project, and supervision of M.Sc. projects. Co-supervision of two PhD students in the REES2 program related to circular economy starting soon (early 2020). Associated research subjects include: use of LCA during technology development, process simulation and LCA, LCA of bio-based products, circular economy solutions.

Main lecturer in the courses Environmental Systems Analysis (VMI010) and Life Cycle Assessment (VTM081) in the Industrial Ecology Master's programme.

Previous appointments

2015–2018 **Researcher**, *Chalmers University of Technology*, Göteborg, Sweden.

Responsible for carrying out Life Cycle Assessment (LCA) within a project that aims at developing a novel biorefinery concept for the production of adipic acid and fine chemicals. Supervised M.Sc. projects focusing on the LCA of bio-based products. Associated research subjects include: use of LCA during technology development, process simulation and LCA, LCA of bio-based products, decision support during technology development.

Teaching the course Environmental Systems Analysis (VMI010) in the Industrial Ecology Master's programme.

2011–2015 **Assistant professor, non-tenure**, *Chalmers University of Technology*, Göteborg, Sweden.

Responsible for carrying out Life Cycle Assessment within the HGBiofuels (funded by the Nordic Energy Top-level Research Initiative) and BioBuF projects (funded by Formas). Associated research subjects include: LCA during technology development, LCA of bio-based products, carbon accounting, decision support during technology development. Supervised M.Sc. projects focusing on the LCA of bio-based products.

Co-supervised Christin Liptow in her PhD work. She received her PhD in May, 2014.

2010–2011 **Research associate & project manager**, *École Polytechnique de Montréal*, Montréal, QC, Canada.

Managed the project 'Method for economic and environmental evaluation of sustainable forest biorefinery strategies'. This project received funding from NSERC following the 2009-2010 Strategic Project Grants Competition (target area Manufacturing - B).

Supported the project 'System Design for Triticale Biorefinery Competitiveness Assessment' by preparing progress reports and a scientific publication, and student guidance.

2007–2009 **Post-doctoral fellow**, *École Polytechnique de Montréal*, Montréal, QC, Canada.

Research subjects included (1) the development of a product portfolio and process design methodology for the forest biorefinery, (2) the use of multi-criteria decision making in design for sustainability problems, and (3) the comparison of results of paper profiling tools with results of the life cycle assessment for a paper product.

Furthermore, LCA of Abitibi-Bowater's Equal Offset™ paper product and a typical uncoated freesheet paper product was conducted.

1999–2000 **Research assistant**, *University of Gent*, Gent, Belgium.

A dynamic simulation of an activated sludge system at an industrial waste water treatment site was used for the development of a phosphate dosage control strategy.

Education

2001–2007 **PhD in chemical engineering**, *École Polytechnique de Montréal*, Montréal, QC, Canada.

1995–1998 **MSc in bioprocess engineering**, *Wageningen Agricultural University*, Wageningen, The Netherlands.

1991–1995 **BSc in chemical engineering**, *Polytechnic College Eindhoven*, Eindhoven, The Netherlands.

Professional interests

Life Cycle Assessment. Technology development. Bio-based economy. Circular economy.

Languages

Dutch	Fluent	<i>Mother language</i>
English	Fluent	<i>Spoken, written</i>
French	Good	<i>Spoken, written</i>
German	Good	<i>Spoken, written</i>
Swedish	Intermediate	<i>Spoken, written</i>

References

Paul Stuart Professor at the department of Chemical Engineering, *École Polytechnique de Montréal*, phone: +1 514 340 4711 ext. 4384, e-mail: paul.stuart@polymtl.ca

Carl Johan Franzén Associate professor at the division of Industrial Biotechnology, Chalmers University of Technology, +46 31 772 3808, e-mail: franzen@chalmers.se

Anne-Marie Tillman Professor at the division of Environmental Systems Analysis, Chalmers University of Technology, phone: +46 31 772 2122, e-mail: anne-marie.tillman@chalmers.se

Publications

Peer-reviewed journal papers

Hermansson, F., Janssen, M., & Svanström, M. (2020). Allocation in life cycle assessment of lignin. *Int J Life Cycle Ass.*

Nickel, D. B., Fornell, R., Janssen, M., & Franzén, C. J. (2020). Multi-scale variability analysis of wheat straw-based ethanol biorefineries identifies bioprocess designs robust against process input variations. *Front Energy Res*, 8, 55.

Hermansson, F., Janssen, M., & Svanström, M. (2019b). Prospective study of lignin-based and recycled carbon fibers in composites through meta-analysis of life cycle assessments. *J Clean Prod*, 223, 946–956.

Peters, G., Harder, R., Arvidsson, R., Baumann, H., Björklund, A., ... Wallbaum, H. (2019). A Swedish comment on 'review: the availability of life-cycle studies in Sweden'. *Int J Life Cycle Assess*, 24, 1758–1759.

Arvidsson, R., Janssen, M., Svanström, M., Johansson, P., & Sandén, B. A. (2018). Energy use and climate change improvements of Li/S batteries based on life cycle assessment. *J Power Sources*, 383, 87–92.

Arvidsson, R., Tillman, A.-M., Sandén, B. A., Janssen, M., Nordelöf, A., ... Molander, S. (2018). Environmental assessment of emerging technologies: Recommendations for prospective LCA. *J Ind Ecol*, 22(6), 1286–1294.

Chambost, V., Janssen, M., & Stuart, P. R. (2018). Systematic assessment of triticale-based biorefinery strategies: Investment decisions for sustainable biorefinery business models. *Biofuels Bioprod Biorefining*, 12(S1), S9–S20.

Liptow, C., Janssen, M., & Tillman, A.-M. (2018). Accounting for effects of carbon flows in LCA of biomass-based products—exploration and evaluation of a selection of existing methods. *Int J Life Cycle Assess*, 23(11), 2110–2125.

Aryapratama, R., & Janssen, M. (2017). Prospective life cycle assessment of bio-based adipic acid production from forest residues. *J Clean Prod*, 164, 434–443.

Xiros, C., Janssen, M., Byström, R., Børresen, B. T., Cannella, D., ... Wännström, S. (2017). Toward a sustainable biorefinery using high-gravity technology. *Biofuels Bioprod Biorefining*, 11(1), 15–27.

Gontia, P., & Janssen, M. (2016). Life cycle assessment of bio-based sodium polyacrylate production from pulp mill side streams: Case study of thermo-mechanical and sulfite pulp mills. *J Clean Prod*, 131, 475–484.

Hermansson, F., Janssen, M., & Gellerstedt, F. (2016). Environmental evaluation of Durapulp bio-composite using LCA: Comparison of two different applications. *J-FOR*, 5(2), 68–76.

Janssen, M., Xiros, C., & Tillman, A.-M. (2016). Life cycle impacts of ethanol production from spruce wood chips under high gravity conditions. *Biotechnol Biofuels*, 9, 53.

Ahlgren, S., Björklund, A., Ekman, A., Karlsson, H., Berlin, J., ... Strid, I. (2015). Review of methodological choices in LCA of biorefinery systems - key issues and recommendations. *Biofuels Bioprod Biorefining*, 9, 606–619.

- Liptow, C., Tillman, A.-M., & Janssen, M. (2015). Life cycle assessment of biomass-based ethylene production in Sweden - is gasification or fermentation the environmentally preferable route? *Int J Life Cycle Assess*, 20, 632–644.
- Janssen, M., Tillman, A.-M., Cannella, D., & Jørgensen, H. (2014). Influence of high gravity process conditions on the environmental impact of ethanol production from wheat straw. *Bioresource Technol*, 173, 148–158.
- Liptow, C., Tillman, A.-M., Janssen, M., Wallberg, O., & Taylor, G. (2013). Ethylene based on woody biomass: what are environmental key issues of a possible future Swedish production on industrial scale. *Int J Life Cycle Assess*, 18(5), 1071–1081.
- Janssen, M., Naliwajka, P., & Stuart, P. (2012). Development of an operations-driven cost model for continuous processes – Part II: Retrofit process design application. *J-FOR*, 2(1), 43–54.
- Quintero-Bermúdez, M. A., Janssen, M., Cohen, J., & Stuart, P. (2012). Early design-stage biorefinery process selection. *Tappi J*, 11(11), 9–16.
- Laflamme-Mayer, M., Janssen, M., & Stuart, P. (2011). Development of an operations-driven cost model for continuous processes – Part I: Framework for design and operations decision making. *J-FOR*, 1(1), 32–41.
- Cohen, J., Janssen, M., Chambost, V., & Stuart, P. (2010). Critical analysis of emerging forest biorefinery (FBR) technologies for ethanol production. *Pulp & Paper Canada*, 111(5-6), 24–30.
- Janssen, M., Riemer, K., & Stuart, P. (2010). Potential cost benefit of electricity load shifting when designing upgrades to an integrated newsprint mill. *PAPTAC Peer-Reviewed Technical Papers*. Online.
- Janssen, M., & Stuart, P. (2010a). Drivers and barriers for implementation of the biorefinery. *Pulp & Paper Canada*, 111(5-6), 13–17.
- Janssen, M., Naliwajka, P., & Stuart, P. R. (2009). Using process-based cost modeling to evaluate process modernization alternatives. *PAPTAC Peer-Reviewed Technical Papers*. Online.
- Janssen, M., Chambost, V., & Stuart, P. R. (2008). Successful partnerships for the forest biorefinery. *Ind Biotechnol*, 4(4), 352–362.
- Janssen, M., Cornejo, F., Riemer, K., Lavallée, H.-C., & Stuart, P. R. (2006). Techno-economic considerations for DIP production increase and implementation of cogeneration at an integrated newsprint mill. *Pulp & Paper Canada*, 107(9), 33–37.
- Cornejo, F., Janssen, M., Gaudreault, C., Samson, R., & Stuart, P. R. (2005). Using Life Cycle Assessment (LCA) as a tool to enhance Environmental Impact Assessments (EIA). *Chemical Engineering Transactions*, 7, 521–528.
- Janssen, M., Laflamme-Mayer, M., Zeinou, M.-H., & Stuart, P. (2004). Survey indicates mills' need to exploit it systems with new business model. *Pulp & Paper*, 78(6), 46–51.
- Janssen, M., Janssen, M., de Winter, M., Tramper, J., Mur, L. R., . . . Wijffels, R. H. (2000). Efficiency of light utilization of *chlamydomonas reinhardtii* under medium-duration light/dark cycles. *J Biotechnol*, 78(2), 123–137.

[Peer-reviewed book chapters](#)

Janssen, M., Nyström Claesson, A., & Lindqvist, M. (2016). Design and Early Development of a MOOC on “Sustainability in Everyday Life”: Role of the Teachers. In: W. Leal Filho & S. Nesbit (Eds.), *New developments in engineering education for sustainable development* (pp. 113–123). Springer International Publishing.

Janssen, M. (2013). Market potential of biorefinery products. In: B. Sandén & K. Pettersson (Eds.), *System perspectives on biorefineries* (pp. 30–41). Chalmers Energy Initiative.

Sanaei, S., Janssen, M., & Stuart, P. (2013). LCA-based environmental evaluation of biorefinery projects. In: P. R. Stuart & M. El-Halwagi (Eds.), *Integrated biorefineries: Design, analysis, and optimization* (pp. 793–818). CRC Press.

PhD thesis

Janssen, M. (2007). *Retrofit design methodology based on process and product modeling* (Doctoral dissertation). École Polytechnique de Montréal.

Conference presentations and posters

Arvidsson, R., Kushnir, D., Janssen, M., & Sandén, B. Prospective inventory modelling of emerging chemicals: The case of photonic materials. In: *SETAC Europe 29th Annual Meeting Abstract Book*. 2019.

Hermansson, F., Janssen, M., & Svanström, M. Environmental challenges and opportunities of lignin. In: *10th International Conference of the International Society for Industrial Ecology*. Beijing, China, 2019.

Janssen, M., Arvidsson, R., & Nordelöf, A. Life cycle assessment of the second use of lithium-ion batteries from hybrid and electric vehicles. In: *10th International Conference of the International Society for Industrial Ecology*. Beijing, China, 2019.

Janssen, M., Badr, S., Svensson, E., & Papadokostantakis, S. Environmental assessment of a biorefinery concept for production of bulk and fine chemicals. In: *10th International Conference of the International Society for Industrial Ecology*. Beijing, China, 2019.

Janssen, M., Gustafsson, E., Echardt, L., Wallinder, J., & Wolf, J. Life cycle assessment of lignin-based carbon fibres. In: *14th Conference on Sustainable Development of Energy, Water and Environment Systems (SDEWES)*. Dubrovnik, Croatia, 2019.

Hermansson, F., Janssen, M., & Svanström, M. Recommendations for routes to sustainable exploitation of CFRP materials - review of life cycle assessments of carbon fibre reinforced materials. In: *ECO-BIO*. Dublin, 2018.

Janssen, M. Process and environmental systems analysis of the BioBuF concept. In: *25th European Biomass Conference & Exhibition*. 2017.

Janssen, M. Using life cycle assessment to guide technology development for bio-based production: An overview. In: *Workshop on 3rd Generation Biorefineries*. C.I.B. 2017.

Janssen, M., Claesson, A. N., Stöhr, C., & Adawi, T. Teaching sustainability: Running a MOOC on “Sustainability in everyday life”. In: *9th biennial conference of the International Society for Industrial Ecology (ISIE)*. International Society of Industrial Ecology. 2017.

Janssen, M., Svanström, M., & Arvidsson, R. Cross-correlation between impact categories in LCAs of forest biomass-based products. In: *9th biennial conference of the International Society for Industrial Ecology (ISIE)*. International Society of Industrial Ecology. 2017.

- Stöhr, C., Janssen, M., Claesson, A. N., & Adawi, T. Teacher development in Massive Open Online Courses - Evaluating reflective practice in a sustainability MOOC. In: *45th SEFI Conference*. 2017.
- Janssen, M., & Nyström Claesson, A. Producing and running a MOOC for the first time – Evaluation from the instructors' perspective. In: *MOOCs in Scandinavia*. 2016.
- Janssen, M., Nyström Claesson, A., & Lindqvist, M. Design and early development of a MOOC on "Sustainability in everyday life": Role of the teachers. In: *EESD15 - The 7th Conference on Engineering Education for Sustainable Development*. 2015.
- Janssen, M., & Stöhr, C. Developing a MOOC at Chalmers: Motivation and first experiences from a teacher's perspective. In: *Konferens om Undervisning och Lärande 2015 (KUL2015)*. 2015.
- Janssen, M., & Tillman, A.-M. Guiding technology development using LCA: The case of bio-based adipic acid production. In: *ISIE Conference 2015*. 2015.
- Stöhr, C., Janssen, M., Lindqvist, M. A., & Nyström Claesson, A. Teacher roles in MOOC design processes – experiences from a Chalmers MOOC. In: *MOOCs in Scandinavia Conference*. Stockholm, Sweden, 2015.
- Svensson, E., Janssen, M., Pettersson, K., & Ekman, A. Economic and environmental analysis of an emerging biorefinery concept as a guide for early technology development. In: *10th Conference on Sustainable Development of Energy, Water and Environment Systems*. 2015.
- Janssen, M., Xiros, C., & Tillman, A.-M. Life cycle assessment of wood-based ethanol production at high gravity conditions. In: *GPE – 4th International Congress on Green Process Engineering*. 2014.
- Hermansson, F., Gellerstedt, F., & Janssen, M. Environmental evaluation of bio-composites using LCA - Comparison of two different applications. In: *63rd Canadian Chemical Engineering Conference*. 2013.
- Janssen, M., & Tillman, A.-M. LCA and simulation of a bioethanol process technology in development. In: *7th International Conference of the International Society for Industrial Ecology (ISIE2013)*. 2013.
- Janssen, M., & Tillman, A.-M. Life cycle assessment during early development stage of a new bio-ethanol production process. In: *63rd Canadian Chemical Engineering Conference*. 2013.
- Janssen, M., & Tillman, A.-M. Use of LCA during process development: The case of a new bioethanol production process. In: *3rd International Forest Biorefinery Symposium, PaperWeek Canada 2013*. 2013.
- Liptow, C., Tillman, A.-M., & Janssen, M. Ethylene production via gasification of wood - what are potential environmental hotspots. In: *63rd Canadian Chemical Engineering Conference*. 2013.
- Janssen, M., & Tillman, A.-M. Life Cycle Assessment of 2nd generation biofuels production using high-gravity hydrolysis and fermentation (H. Jørgensen, Ed.). In: *Advanced Biofuels in a Biorefinery Approach* (H. Jørgensen, Ed.). Ed. by Jørgensen, H. 2012.
- Quintero-Bermúdez, M. A., Janssen, M., Cohen, J., & Stuart, P. Early design stage biorefinery process selection. In: *2011 PEERS and International Pulp Bleaching Conference Proceedings, Paper no. BIO2.2*. TAPPI. 2011.

- Janssen, M., & Stuart, P. Evaluating biorefinery sustainability. In: *Proceedings of 4th Canadian forum on the life cycle management of products and services (Cycle2010)*, Paper no. 1038. 2010.
- Janssen, M., & Stuart, P. Sustainable product portfolio and process design of the forest biorefinery. In: *Proceedings of Canadian Engineering Education Association Inaugural Conference (CEEA 2010)*, Paper no. 92. 2010.
- Janssen, M., Chambost, V., & Stuart, P. Chemical product design: Schools of thought and biorefinery practice. In: *Proceedings of the 8th World Congress of Chemical Engineering*, Paper no. 810. 2009.
- Janssen, M., Chambost, V., & Stuart, P. MCDM methodology for the selection of forest biorefinery products and product families. In: *Proceedings of International Biorefinery Conference (IBC 09)*, Paper no. 3C. 2009.
- Janssen, M., Chambost, V., & Stuart, P. R. Choice of a sustainable forest biorefinery product platform using an MCDM method. In: *Proceedings of the 7th International Conference on the Foundations of Computer-Aided Process Design (FOCAPD)*. 2009, 389–398.
- Janssen, M., Rasamoela, S., Romaric-Batsy, D., & Stuart, P. R. Process simulation of the forest biorefinery. In: *Proceedings of the 95th Paptac Annual Meeting*. 2009.
- Janssen, M., Riemer, K., & Stuart, P. Potential cost benefits of electricity load shifting when designing upgrades to an integrated newsprint mill. In: *Proceedings of the 94th Paptac Annual Meeting*. 2008.
- Janssen, M., & Stuart, P. Sustainable retrofit process design using multi-criteria decision making techniques. In: *Proceedings of 58th CShE Conference*. 2008, Paper no. 293.
- Janssen, M., Naliwajka, P., & Stuart, P. Using process-based cost modeling to evaluate process modernization alternatives. In: *92st Annual Meeting Preprints-Book B*. 2006, 61–71.
- Janssen, M., Cornejo, F., Riemer, K., Lavallee, H.-C., & Stuart, P. Techno-economic considerations for DIP production increase and implementation of cogeneration at an integrated newsprint mill. English. In: *91st PAPTAC Annual Meeting Preprints*. 100. Montréal, QC, Canada, 2005, 91–96.
- Janssen, M., & Stuart, P. Business model framework for using real-time process data for design decision making. In: *Proceedings of the Inaugural CDEN Design Conference*. Montréal, QC, Canada, 2004, comm. 07B5.
- Janssen, M., Laflamme-Mayer, M., & Stuart, P. Survey of data management systems used in the pulp and paper industry. In: *FOCAPO 2003: Proceedings of the Foundations Of Computer Aided Process Operations 2003*. 2003, 551–554.
- Zeinou, M.-H., Janssen, M., Laflamme-Mayer, M., & Stuart, P. Use of real-time mill-based data systems in the pulp and paper industry. In: *Proceedings of the 53rd CShE Conference*. 2003, Paper no. 311.
- Bargmann, M., Bras, B., Carmichael, C., Janssen, M., & Stuart, P. Linking of a process model to an ABCEM model within an integrated newsprint mill. In: *Proceedings of the 52nd CShE Conference*. 2002.
- Janssen, M., St-Onge, J., & Stuart, P. Using a business model for strategic decision making. In: *88th Paptac Annual Meeting Preprints, Book A*. 2002, 179–182.

Janssen, M., Urbanski, R., St-Onge, J., & Stuart, P. An approach to pulp and paper business modeling integrating mill-wide process simulation. In: *Proceedings of the 51st CSChE Conference*. 2001.

Janssen, M., Hopkins, L., Petersen, B., & Vanrolleghem, P. Reduction of an activated sludge process model to facilitate controller tuning. In: *Proceedings of the 14th European Simulation Multiconference*. 2000, 697–701.

Supervision and examination

PhD students

- 2020–present **Adeline Jerome**, *co-supervision*, Project title: “Environmental assessment of circular economy solutions”.
- 2020–present **Harald Helander**, *co-supervision*, Project title: “Material resource assessment of circular economy solutions”.
- 2017–present **Frida Hermansson**, *co-supervision*, Project title: “Life cycle assessment of lignin-based carbon fibres in composites”.
- 2011–2014 **Christin Liptow**, *co-supervision*, Thesis title: “Environmental assessment of emerging routes to biomass based chemicals”.

MSc students

- 2020 **Marcus Brunström**, *supervision*, Thesis title: “Life cycle assessment and energy systems analysis of second-life Li-ion batteries at different scales”.
- 2020 **Oraphitchaya Rattanakoch**, *examiner*, Thesis title: “Environmental damage costs linked to hydrofobes raw materials”.
- 2020 **Varun Gowda Palahalli Ramesh**, *co-supervision, examiner*, Thesis title: “Technical and economic analysis of installing a solar PV plant on a landfill in south-western Sweden”.
- 2020 **Sayali Bhalekar & Viktor Hakkarainen**, *co-supervision, examiner*, Thesis title: “Combining biochar production, electricity generation and district heating at Händelöverket district heating plant – Assessing climate impact and economic viability through LCA and LCCA”.
- 2019 **Zeinab Mohseni**, *supervision*, Thesis title: “Life Cycle Assessment of transportation in household’s waste collection”.
- 2019 **Pedro Anchustegui & Efstathios Pasakopoulos**, *co-supervision, examiner*, Thesis title: “At the end of the road: is there life after rolling? Life cycle assessment of the impacts of different end of life treatments of tyres”.
- 2019 **Maja Nellström & Mate Saric**, *co-supervision, examiner*, Thesis title: “A Comparative Life Cycle Assessment of Nudie Jeans’ Repair and Reuse Concept”.
- 2019 **Julia Lindholm & Louise Lorentzon**, *co-supervision, examiner*, Thesis title: “Managing life cycle assessment of buses. An investigation on how Volvo Buses can meet environmental requirements from green public procurement, now and in the future”.
- 2018 **Niklas Westerlund**, *co-supervision, examiner*, Thesis title: “Circularity Indicator Calculation Tool. A comprehensive method and metric for measuring the circularity of a product”.
- 2018 **Niclas Silfverstrand**, *supervision*, Thesis title: “Land use and land use change - Implications on biogenic carbon balance. Importance of model assumptions for a case study of a tissue product”.
- 2017 **Lisa Axén Stålberg**, *supervision*, Thesis title: “Comparative LCA of street sandboxes made of polyethylene and glass fibre reinforced plastic”.

- 2016 **Amanda Nordqvist-Melander & Kristina Qvint**, *supervision*, Thesis title: “Assessing the sustainability of first generation ethanol for bioethylene production”.
- 2016 **Marcus Adolfsson & Shivan Rashid**, *supervision*, Thesis title: “Life cycle assessment and life cycle cost analysis of heat exchangers - A case for Inter Terminals Sweden AB located in Port of Gothenburg”.
- 2016 **Rio Aryapratama**, *supervision*, Thesis title: “Prospective life cycle assessment of bio-adipic acid production from forest residues”.
- 2016 **Erica Carlsson**, *co-supervision, examiner*, Thesis title: “The future of food waste – LCA of existing and emerging routes to bio-based chemicals”.
- 2015 **Katerina Terpou**, *supervision*, Thesis title: “Applying circular economy principles in the oil & gas industry - An LCA study in the decommissioning process of offshore platforms”.
- 2015 **Gulnara Shavaliyeva**, *co-supervision*, Thesis title: “Life cycle assessment of algae biomass and algae biofuel production”.
- 2014 **Jonathan Alvebratt & Martin Blidmark**, *supervision*, Thesis title: “Life cycle assessment of building-integrated solar technique”.
- 2014 **Paul Gontia**, *supervision, examiner*, Thesis title: “Life cycle assessment of bio-based sodium poly-acrylate production from pulp mill side streams - Case at a TMP and sulphite pulp mill”.
- 2013 **Frida Hermansson**, *supervision*, Thesis title: “Environmental evaluation of bio-composites using LCA”.

BSc students

- 2017 **Viktoria Bogren & Tina Mostafavi**, *supervision*, Thesis title: ‘Valet mellan matlåda i plast och matlåda i glas - En jämförande livscykelanalys’.

Teaching activities

- 2017–present Co-responsible for the Life Cycle Assessment course (VTM081) at Chalmers.
- 2017–present Guest lectures in the courses Global chemical sustainability (KBT140), Industrial biotechnology (KBT090) and Ethics in biotechnology (BBT010) at Chalmers.
- 2014–present Design and development of and running one of the first two Massive Open Online Courses (MOOCs) at Chalmers called “Sustainability in everyday life”.
- 2013–present Supervision of Master’s graduation projects.
- 2011–present Responsible for the Environmental Systems Analysis course (VMI010) at Chalmers.

Research grants

- 2019 **Mistra**, *Project title: “Resource-Efficient and Effective Solutions Phase 2 (REES2)”*, Project length: 4 years, Funding: 47 MSEK of which 7.7 MSEK to the division of Environmental Systems Analysis.
Academic collaboration with Linköping University and Lund University. Industrial collaboration with several partners.
- 2019 **Batterifonden**, *Project title: “Scale up of sustainable (mechanico-chemical) closed loop process for effective Li-ion batteries recycling”*, Project length: 2 years, Funding: 5183 kSEK of which 422 kSEK to the division of Environmental Systems Analysis.
Academic collaboration with the Industrial materials recycling group at Chalmers and Luleå Technical University – Minerals and metallurgical engineering. Industrial collaboration with Northvolt AB, Nouryon AB, Stena Recycling International AB and Volvo Cars AB.

- 2018 **Batterifonden**, *Project title: "Second-use of Li-ion batteries from hybrid and electric vehicles"*, Project length: 2 years, Funding: 3400 kSEK of which 507.5 kSEK to the division of Environmental Systems Analysis.
Industrial collaboration with Ferroamp Elektronik AB, Stena Metall AB, Stena Recycling, Stena Recycling International AB and Volkswagen Group Sweden.
- 2018 **EIT-Raw Materials**, *Project title: "MIN-TEA. Materials INnovative TEchnologies Assessment"*, Project length: 2.5 years, Funding: k€ 385 of which k€ 121 to the division of Environmental Systems Analysis.
Academic collaboration with Leiden University – Institute of Environmental Sciences (CML), Fraunhofer Institute for Systems and Innovation and Paul Scherrer Institute.
- 2018 **Area of Advance Energy**, *Project title: "Multi-scale bioethanol production systems analysis – from bio-reactor to LCA"*, Project length: 6 months, Funding: 237 kSEK of which 158 kSEK to the division of Environmental Systems Analysis.
Collaboration with the division of Industrial Biotechnology at Chalmers and RISE Energy and Circular Economy (Research Institutes of Sweden).
- 2016 **Chalmers fund for Open Access publishing**, *Funding for Open Access publishing*, Paper: 'Life cycle impacts of ethanol production from spruce wood chips under high gravity conditions', Funding: £1330.
Published in March 2016 in Biotechnology for Biofuels.
- 2013 **Adlerbertska Stiftelsen**, *Travel funding to attend the 63rd Canadian Chemical Engineering Conference in Fredericton, NB, Canada*, Funding: 18 kSEK.
- 2013 **Formas**, *Project title: "Upgrading of renewable domestic raw materials to value-added bulk and fine chemicals for a biobased economy: technology development, systems integration and environmental impact assessment" (BioBuF)*, Project length: 5 years, Funding: 25 MSEK of which 2.3 MSEK to the division of Environmental Systems Analysis.
Academic collaboration with the divisions of Industrial Biotechnology, Forest Products and Chemical Engineering, Physical Resource Theory and Industrial Energy Systems & Technologies at Chalmers and SP Food and Bioscience. Industrial collaboration with AkzoNobel, Holmen Energi, SP Processum, Västra Götelands Regionen and Sveaskog.
- 2009 **Natural Sciences and Engineering Research Council of Canada (NSERC)**, *Project title: 'Method for economic and environmental evaluation of sustainable forest biorefinery strategies'*, Project length: 3 years, Funding: \$CAD 350,000. Prof. Paul Stuart at École Polytechnique de Montréal was the main applicant.
Industrial collaboration with Domtar.

Other activities

Subcontracting

- 2018 Subcontracted by the EU project called Greenlight (title: "Cost effective lignin-based carbon fibres for innovative light-weight applications") to perform a life cycle assessment within the project.

Speaker engagement

- April 2018, Invited lecturer at Maastricht University, The Netherlands in the course "Life cycle assessment:
2019 Basic principles and uses".
- September Invited lecturer at the University of Milano-Bicocca, Italy during the Summer School "Towards
2017, 2018 a bio-based economy: science, innovation, economics, education".
- May 2017 Speaker at Vetenskapsfestivalen (Science Festival), Gothenburg.
- December Invited lecturer at the University of Bari, Italy.
2015

- March 2015 Discussion leader during the defense of Diego Peñaloza's licentiate thesis titled "Exploring climate impacts of timber buildings" at KTH, Stockholm.
- October 2013 Keynote speaker at the 63rd Canadian Chemical Engineering Conference, Fredericton, NB, Canada.

Peer review

- 2011–present Peer reviewer of research articles in International Journal of Life Cycle Assessment, Journal of Industrial Ecology, Journal of Cleaner Production, Biofuels, Bioproducts & Biorefining, International Journal of Sustainable Engineering, Industrial Crops and Products, Nordic Pulp & Paper Research Journal, Green Processing and Synthesis.

Training/courses

- 2013–2016 Diploma of Higher Education
- 2012–2013 Leadership program for Assistant Professors at Chalmers
- October 2008 Atelier thématique, Aide multicritère à la décision: le surclassement et les méthodes PROMETHEE et GAIA
- September 2006 Analyse environnementale du cycle de vie (ACV) des produits et services: théorie et pratique
- January 2005 Impact:ECS from 3C Software, cost management software
- February 2001 Wingems, process simulation software focused on the pulp and paper industry

Communication with stakeholders

- 2019–present *Research project.* Collaboration and regular meetings with project stakeholders in the project "Scale up of sustainable (mechanico-chemical) closed loop process for effective Li-ion batteries recycling".
- 2018–present *Research project.* Collaboration and regular meetings with project stakeholders in the project "Second-use of Li-ion batteries from hybrid and electric vehicles".
- 2017–present *Research project.* Collaboration and regular meetings with project stakeholders in the LIBRE project (title: "Lignin based carbon fibres for composites") of which Frida Hermansson's PhD project is part.
 - 2018 *Research project.* Collaboration and regular meetings with the Swedish partners (Södra Skogsägarna ekonomisk förening and RISE Innventia) in the Greenlight project.
 - 2013-2018 *Reference group in the BioBuF project.* Regular meetings with the group. Representatives of, among, others, Energimyndigheten, Göteborg Energi, Kemiindustriklustret/Business Region Göteborg, Lantbrukarnas Riksförbund and Vinnova are part of the reference group.
 - 2016 *Inter Terminals Sweden AB.* Collaboration during Marcus Adolfsson and Shivan Rashid's MSc project who did an LCA and LCC analysis of the implementation of new heat exchangers at an oil terminal in the Göteborg harbour.
 - 2016 *Borealis AB.* Collaboration during Amanda Nordqvist-Melander and Kristina Qvint's MSc project who analyzed the sustainability of first generation bio-ethanol from different producers for bio-ethylene production.
- 2015-2016 Collaboration with *ClimateSaver* who developed a mobile app to calculate the carbon footprint of a person's daily life.
 - 2014 *SOLEV entreprenad.* Collaboration during Jonathan Alvebratt and Martin Blidmark's MSc project who did an LCA of the building-integrated solar construction that SOLEV entreprenad is developing.

- 2013–2014 Part of the reference group in the f3 project “LCA of biorefineries. Identification of key issues and methodological recommendations”.
- 2014 *Research project.* Communication of LCA results (MSc thesis by Paul Gontia) to stakeholders in the Vinnova-funded research project called “Biobaserad produktion av akrylater” (Biobased production of acrylates) (project no. 2010-02597). Stakeholders were researchers at the divisions of Industrial Biotechnology and Systems Biology at Chalmers, and industry representatives from SCA and Södra.
- 2011-2014 *Research project.* Communication of LCA results to the stakeholders in the project “High gravity hydrolysis and fermentation of lignocellulosic material for production of biofuels (HGBiofuels”. Stakeholders were researchers at the divisions of Industrial Biotechnology and Systems Biology at Chalmers and at Forest and Landscape at the University of Copenhagen, and industry representatives from Inbicon, SEKAB and Statoil.
- 2011-2014 *Reference group in PhD project of Christin Liptow.* Regular meetings took place over the course of Christin Litow’s PhD project. Representatives from Borealis, Stena Recycling, Tetrapak and Treoplast were part of the reference group.
- 2013 *Södra Skogsägarna ekonomisk förening.* Collaboration during the MSc project of Frida Hermansson who did an LCA of bio-composites among which was Durapulp, Södra’s bio-composite product.
- 2011 *University of Borås.* Collaboration in the Vinnova pre-study called “Från träd till tyg” (from tree to fabric) in which alternative production of cellulose carbamate, a replacement product for viscose, was explored.

Other

- 2018-present Coordinating ESA Seminar series.
- 2016 Arranged a 2-week visit for Ellen Slegers, post-doctoral researcher at Wageningen University, at the division of Environmental Systems Analysis. Ellen works on the sustainable design of biorefineries.
- 2014 Acknowledged in the paper by Madelene Ostwald and Sabine Henders, "Making two parallel land-use sector debates meet: Carbon leakage and indirect land-use change". *Land Use Policy*, 36, 533-542.
- 2013 Part of the organizing committee of the *Forest Biorefinery Symposium* during the 63rd *Canadian Chemical Engineering Conference*, Fredericton, NB, Canada.
- 2013 Coordinating activities for the junior faculty at the department of Energy and Environment at Chalmers. Responsible for organizing activities for the junior faculty at the department (together with Jonas Nässén and David Pallarès).
- 2012 Arranged a 1-month visit (short term scientific mission placement) for Fionnuala Murphy, PhD student at University College Dublin, at the division of Environmental Systems Analysis. Fionnuala worked on LCA of forestry products.
- 2012 Setting up a mentorship program for post-docs and assistant-professors at the department of Energy and Environment at Chalmers. With a small group of three assistant-professors and administrative support, we set up this program.
- 2012 Invited as a contributor to the e-book *System Perspectives on Biorefineries* published by Chalmers Energy Initiative.
- 2011 Organization of a collaboration-themed day with the senior staff at ESA. This was a day organized by the junior faculty staff at ESA. The topics addressed were collaboration within ESA, development and direction of research, outreach and changes at ESA at that time.

- 2010-2011 Supported the project 'System Design for Triticale Biorefinery Competitiveness Assessment' by preparing progress reports and a scientific publication, and student guidance.
- 2008, 2009 Organization of conference panels. Organization of panels during the World Congress on Industrial Biotechnology and Bioprocessing. These panels aimed at discussing with the audience how to successfully develop and exploit the forest biorefinery from a business point-of-view.