

## ISABELLE LÖFGREN

Isabelle Löfgren received her M.Sc. in Solar Energy Engineering at Dalarna University, Borlänge, in 2022. Her master thesis was conducted at Independent Insulation Group and dealt with the mitigation of sub-synchronous control interaction in a hybrid wind and PV farm using a PV-STATCOM. After graduating, Isabelle joined Independent Insulation Group working with EMT-type studies.



During her studies, Isabelle has worked part-time as a research assistant at Luleå University of Technology, working mainly with power quality and signal processing. In co-operation with Luleå University of Technology, Isabelle has written two conference papers presented at CIREN 2021 and ICHQP 2022, respectively.

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### MAIN FIELDS OF COMPETENCE

- Sub-synchronous resonance and oscillations
- Impedance analysis
- Power quality and signal processing

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### WORK EXPERIENCE

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| 2022 –      | <b>Independent Insulation Group Sweden AB</b> , Ludvika, Sweden<br><i>Engineer</i>   |
| 2020 – 2021 | <b>Luleå University of Technology</b> , Skellefteå, Sweden<br><i>Research Assistant</i><br>Part-time employment working with power quality and signal processing, specifically interharmonics and rapid voltage changes. |

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### EDUCATIONAL DEGREES

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| 2022 | <b>Master of Science in Solar Energy Engineering</b><br>Dalarna University, Borlänge, Sweden<br>Thesis: Mitigating SSCI in a hybrid wind and PV farm utilizing PV-STATCOM – A Swedish case study<br>August 2020 – June 2022  |
| 2020 | <b>Bachelor of Science in Energy Engineering</b><br>Dalarna University, Borlänge, Sweden<br>Thesis: Interharmonic Analysis of Sustainable Energy Sources and Loads – Comparing two signal processing methods for estimation of interharmonics<br>August 2017 – June 2020 |

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## LANGUAGES

Swedish (native), English (professional level)

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## LIST OF PROJECTS

2022	<b><i>Transient overvoltages caused by intermittent earth faults</i></b> EMT studies in PSCAD with the aim of investigating possible overvoltages due to intermittent earth faults in a system with isolated earth.
2022	<b><i>Calculation of RVCs when energizing cables and transformers</i></b> EMT studies in PSCAD with the aim of investigating RVCs when energizing cables and transformers. The project involves detailed modelling of different components as well as signal processing.
2022-	<b><i>Allocation, assessment and validation of harmonic limits to solar and wind farms</i></b> Industry project with the aim to give recommendations regarding the process for allocation, assessment, and validation of harmonic limits to solar and wind farms in Sweden.
2022	<b><i>Master Thesis</i></b> Thesis title: "Mitigating SSCI in a hybrid wind and PV farm utilizing PV-STATCOM – A Swedish case study" This thesis dealt with mitigating sub-synchronous control interaction (SSCI) in a hybrid wind and PV farm by operating the PV farm as a STATCOM. The PV farm was implemented from scratch, including the control system, in PSCAD.
2021	<b><i>Detection of RVCs in a medium voltage network</i></b> Project with Luleå University of Technology dealing with detecting RVCs in medium voltage data. The definition of an RVC given in IEC 61000-4-30 was altered in various ways to analyse the impact on the detected RVCs.
2020	<b><i>Analysis of interharmonics under fundamental frequency variations</i></b> Project with Luleå University of Technology dealing with signal processing of interharmonics when the fundamental frequency is not constant. Both DFT based (e.g., FFT) and model based (e.g., ESPRIT) signal processing methods were used.

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## LIST OF PUBLICATIONS

<b>I. Löfgren</b> , O. Lennerhag <i>Analysis and Mitigation of SSCI when connecting wind farms to series compensated lines</i> Submitted to International Conference on Power System Transients (IPST), 2023
<b>I. Löfgren</b> , E. Gutiérrez Ballesteros, S. Rönnerberg <i>Modified Method of Detecting Rapid Voltage Changes in a Medium Voltage Network</i> International Conference on Harmonics and Quality of Power (ICHQP), Naples, Italy, 2022
<b>I. Löfgren</b> <i>Mitigating SSCI in a hybrid wind and PV farm utilizing PV-STATCOM – A Swedish case study</i> Master's Thesis, Dalarna University, Borlänge, Sweden, 2022
<b>I. Löfgren</b> , V. Ravindran, S. Rönnerberg <i>Interharmonics under fundamental frequency variations</i> 26 <sup>th</sup> International Conference & Exhibition on Electricity Distribution (CIRED), 2021

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**I. Löfgren**

*Interharmonic Analysis of Sustainable Energy Sources and Loads – Comparing two signal processing methods for estimation of interharmonics*

Bachelor's Thesis, Dalarna University, Borlänge, Sweden, 2020

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