

CURRICULUM VITAE

JOAKIM MUNKHAMMAR

CONTACT INFORMATION

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DOCTORAL DEGREE

30/3/2015 **Doctor of Philosophy (Ph.D.) in Engineering Science** at Uppsala University 30 March 2015.

APPOINTMENT AS DOCENT

25/9/2018 **Docent in Engineering Science** at Uppsala University 25 September 2018.

ADDITIONAL ACADEMIC DEGREES

2012 **Licentiate of Philosophy (Ph.Lic.) in Engineering Science** at Uppsala University 2012.

2008 **Master of Science (M.Sc.) in Mathematics (1yr)** at Uppsala University 2008. I was also exchange student at California State University East Bay (CSUEB), in Hayward, California, USA, in 2005.

2007 **Master of Science (M.Sc.) in Physics (1yr)** at Uppsala University 2007. (Formally fetched 2015)

2005 **Bachelor of Science (B.Sc.) in Physics** at Uppsala University 2005. (Formally fetched 2015)

2004 **Bachelor of Science (B.Sc.) in Mathematics** at Uppsala University 2004. (Formally fetched 2015)

CURRENT POSITION

3/2021- **Senior Lecturer/Associate professor**, Department of Civil and Industrial Engineering at Uppsala University. Full time employment. Time for research: 50 percent.

PREVIOUS POSITIONS

- 11/2017-3/2021 **Assistant professor**, Department Engineering Sciences (2017-2019) and Department of Civil and Industrial Engineering (2019-2021) at Uppsala University. Full time employment. Time for research: 70 percent.
- 11/2015-11/2017 **Postdoc**, at the Department of Engineering Sciences at Uppsala University. Full time employment. Time for research: 80 percent.
- 3-11/2015 **Researcher**, at the Department of Engineering Sciences, Uppsala University. Full time employment. Time for research: 80 percent.
- 8/2010-3/2015 **Ph.D. student**, at the Department of Engineering Sciences at Uppsala University. Full time employment. Time for research: 90 percent.
- 3/2008-8/2010 **Software test engineer**, at GE Healthcare, Uppsala.
- 8/2007-9/2007 **Research assistant**, at the Department of Mathematics, Uppsala University.
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DOCTORAL STUDENT SUPERVISION

This list includes passed licentiate (Ph.Lic.) and doctoral (Ph.D.) degree dates.

- - - **TBD**, main supervisor, Ph.D. defense 2029. Currently being recruited.
- 9/2023- **Santiago Valencia Gonzalez**, assistant supervisor, Dalarna University, Ph.D. defense 2027.
- 2/2023- **Mohamad Koubar**, principal supervisor, including recruiting. Ph.D. defense 2027.
- 9/2022- **Marieke Rynoson**, assistant supervisor, Dalarna University, Ph.D. defense 2027.
- 5/2020-10/2024 **Oskar Lindberg**, principal supervisor May 2020 - January 2021. Co-supervisor February 2021 - October 2024. Passed Licentiate on 16 September 2022. Ph.D. defense on 11 October 2024.
- 6/2018-10/2023 **Umar Hanif Ramadhani**, assistant supervisor since first day, including recruiting. Passed licentiate on 9 April 2021. Ph.D. defense on 6 October 2023.
- 6/2018-9/2023 **Fatima Johari**, assistant supervisor since first day. Passed licentiate on 20 January 2021. Ph.D. defense on 15 September 2023.
- 6/2018-6/2023 **Reza Fachrizal**, principal supervisor since first day, including recruiting. Passed licentiate on 15 October 2020. Ph.D. defense on 2 June 2023.
- 6/2016-1/2021 **Dennis van der Meer**, assistant supervisor since first day, including recruiting. Passed licentiate on 16 November 2018. Passed Ph.D. defense on 22 January 2021.
- 6/2016-9/2020 **Mahmoud Shepero**, principal supervisor since first day, including recruiting. Passed licentiate on 22 October 2018. Ph.D. defense on 22 September 2020.
- 6/2015-11/2018 **Rasmus Luthander**, assistant supervisor, including recruiting. Passed licentiate on May 20 2016. Ph.D. defence on 29 November 2018.

MENTORSHIP/SUPERVISION

- 2022 **Reina Kobayashi**, visiting master student working on road widening research, from Osaka Institute of Technology, Japan, assistant mentor.
- 2022 **Kun Qian**, visiting Ph.D. student working on electric vehicle charging research, from Danish Southern University, Denmark, mentor.
- 2022 **Elia Odabasi**, visiting Ph.D. student, working on bike sharing research, from Ege University, Turkey, mentor.
- 2021-2022 **Mahmoud Shepero**, working on modeling transport in cities, postdoc mentor.
- 2021-2023 **Âzeddine Frimane**, working on probabilistic solar forecasting and solar energy system modeling, postdoc mentor.
- 2018-2019 **Jon Liisberg**, visiting Ph.D. student from Technical University Denmark (DTU), Denmark, working on electricity use modeling, assistant mentor.
- 2016 **Bilal Babar**, visiting Ph.D. student from the Arctic University in Tromsø, Norway, working on modeling electric vehicle charging and solar energy use, assistant mentor.

APPOINTMENTS

- 2024 **External evaluator** on FORMAS call for career support in early stages, 2024.
- 2024 **Ph.D. thesis reviewer** on Scott Watts Ph.D. thesis for University of New South Wales (UNSW), Sydney, Australia.
- 2024- **Expert** at the International Energy Agency, PVPS task 16: Solar Resource for High Penetration and Large Scale Applications.
- 2023-2026 **Reference group member** for "Improve resilience and security for existing electricity grid with an electric vehicle based 'virtual' electricity grid (EVEN)" research project funded by the Swedish Energy Agency 2023-2026. Project leader: Pei Huang, Dalarna University.
- 2022 **Expert reviewer**, review panelist, Regionale Forskningsfond (RFF). Responsible for reviewing applications on traffic planning regarding electric vehicles.
- 2022 **Expert reviewer**, Swiss National Science Foundation 2022. Responsible for reviewing an application in solar forecasting for funding.
- 2022 **External reviewer**, Karlstad University, Sweden. Responsible for reviewing applications for the position "assistant professor in smart grids".
- 2021 **Book proposal reviewer** for Elsevier 2021.
- 2021-2022 **Expert reviewer**, review panelist, Academy of Finland. Responsible for providing reviews to research applications on energy systems 2021 and 2022.
- 2020-2021 **Programme coordinator** of the international InnoEnergy-based Energy Technology Master Programme, Uppsala University.
- 2018-2020 **Council member**, Energy Technology Master Programme, Uppsala University.

- 2019 **Faculty opponent** on Niklas Jakobsson's Ph.D. thesis defense (on electrification of private mobility) on 4 November 2019 at Chalmers University of Technology, Gothenburg, Sweden.
- 2018-2021 **Degree project director** of the international InnoEnergy-based Energy Technology Master Programme, Uppsala University.
- 2012-2015 **Consortium assistant** for the building consortium in the Programme Energy Systems research school. Responsible for co-organizing consortium meetings.

AWARDS, PRIZES AND RECOGNITIONS

- 2024 **Ambassador for Uppsala Municipality**, recognized by merit for having promoted the city of Uppsala in national and international settings (in particular associated with the JPI Urban Europe-funded DyMoN research project).
- 2022-2023 **IVA's 100-list** prize for the research project SOLVE from the Royal Swedish Academy of Engineering Sciences 2022 and 2023. (Not directly presented to me, I was application assistant for the research project, collaborator, 3 Ph.D. student supervisor and deputy theme leader)
- 2022 **Best course of the year award** for the course "Solar Energy Technology and Systems" on the Energy Systems Engineering programme 2021. Motivation: "Flawless course with teacher that care about their students", April 2022. (Presented to the course director Jonathan Scragg, I have responsibility for a lecture, a lab, mini project supervision, study visit, exam design, grading and for manning approximately half of the course, since our division receives half of the course funds and I am delegated to do the manning)
- 2022 **Best course of the period award** for the course "Solar Energy Technology and Systems" on Energy Systems Engineering programme fall 2021. Motivation: "It is precisely what a technology and systems course should be", March 2022. (Presented to the course director Jonathan Scragg, I have responsibility for a lecture, a lab, mini project supervision, study visit, exam design, grading and for manning half of the course, since our division receives half of the course funds and I am delegated to do the manning)
- 2019-2023 **Top 2 percent Stanford standardized science-wide citation indicator**, on yearly measure for the five last consecutive years 2019-2023. Placing position 2465 (2023), 2887 (2022), 4051 (2021), 3360 (2020) and 3773 (2019) in subfield "Energy" and placing 131 at Uppsala University over all fields (2023). I was also included on the career-long (all scientists over all time) list for 2022 and 2023. In 2023 I placed 4978 in subfield "Energy", and **placed 361 at Uppsala University among all fields over all time**. (Ioannidis, J. P.A., 2024 data-update for "Updated science-wide author databases of standardized citation indicators", 2024 V2-6, doi: 10.17632/btchxktzyw.6)
- 2021 **Best poster award**, via my Ph.D. student Reza Fachrizal, for best project "Smart charging strategies and optimal PV-EV sizing to increase the combined PV-EV hosting capacity in the distribution grid", at SweGrids conference, Solna, Sweden, December 2021.
- 2020 **Front page featured article** at Journal of Renewable and Sustainable Energy in May 2020 (van der Meer, et al. 2020, see pub. list).
- 2018 **Conference promotion prize**. A prize for best promoting the Solar Integration Workshop, Stockholm 2018.

- 2017 **Best paper award** from Solar Integration Workshop, Berlin October 2017, leading to a journal publication (Luthander et al. 2019, see pub. list).
- 2016 **Outstanding contribution in reviewing** from Elsevier Solar Energy 2016.
- 2014 **Ångström Academy Innovation prize and scholarship** (Prize) "for outstanding work in his Ph.D. project regarding self-consumption of photovoltaic power production in households as a means to increase the hosting capacity in the local distribution grid.", 2014.
- 2006 **MCS award.** Recognized winner for solving the problem-of-the-month for the academic year 2005/2006 as exchange student at CSUEB, Department Mathematics and Computer Science at CSUEB, San Francisco, USA, 2005.

SUMMARY OF BIBLIOGRAPHICAL DATA

- Google scholar See up-to-date data at:
<https://scholar.google.com/citations?user=5Taof-QAAAAJ&hl=en>
- Researchgate See up-to-date data at:
<https://www.researchgate.net/profile/Joakim-Munkhammar-2>
- Web of science See up-to-date data at:
<https://www.webofscience.com/wos/author/record/AGW-6753-2022>

Received grants (16)

- 2024 **Smart and bidirectional workplace electric vehicle charging as electricity grid support**, financed by the call "contribute to the development of electric vehicles role in future electricity systems" from the Swedish Energy Agency. The project is a collaboration between Uppsala University, Mälardalen University, Vasakronan AB, EPspot AB and Idun Real Estate AB. My responsibilities: project leadership, recruitment, Ph.D. supervision, scientific work, economic and administrative responsibilities. Project duration: 11/2024 - 12/2027. Total project funding: 6 796 kSEK. Received funding (UU)/funding for Joakim Munkhammar group: 3 248 kSEK. **(Main applicant)**
- 2024 **Pre-study of Morgongåva business park energy system**, financed by The Swedish Agency for Economic and Regional Growth, co-financed by the European Union. Project leader: Therese Fernlund (STUNS). My responsibilities: Work package completion, energy system simulations, economic and administrative responsibilities. Project duration: 9/2024 - 6/2025. Total budget: 1 244 kSEK. Received funding (UU): 435 kSEK. Funding for Joakim Munkhammar group: 216 kSEK. **(Co-applicant)**
- 2023 **Extrication of grid capacity and flexibility based on simulated aggregated solar power production that considers the orientation of individual systems**, from the Swedish Energy Agency. Project leader: Johan Lindahl (Becquerel Sweden). Project leader for UU: Joakim Munkhammar. My responsibilities: work package completion, scientific work, supervision, economic and administrative responsibilities for Uppsala University's part. Project duration: 9/2023-3/2025. Total budget: 2 600 kSEK. Received funding (UU): 845 kSEK. Funding for Joakim Munkhammar group: 450 kSEK. **(Co-applicant)**
- 2023 **Solar parks as a flexible resource in space and time**, from Åforsk. Project leader: Joakim Munkhammar. My responsibilities: project leadership, work package

- completion, scientific work, Ph.D. student supervision, economic and administrative responsibilities. Project duration: 9/2023 - 12/2025. Total project budget: 1 897 kSEK. Received funding (UU): 1 897 kSEK. Funding for Joakim Munkhammar group: 1 897 kSEK. **(Main applicant)**
- 2021 **Smart charging strategies and optimal PV-EV sizing to increase the combined PV-EV hosting capacity in the distribution grid** from Swedish Centre for Smart Grids and Energy Storage (SweGrids). Project leader: Joakim Munkhammar, Uppsala University, with project for Ph.D. student Reza Fachrizal. My responsibilities: Scientific work, supervision, economic and administrative responsibilities. Project duration: 7/2021-12/2021. Project budget: 475 kSEK. Received funding (UU): 450 kSEK. Funding for Joakim Munkhammar group: 450 kSEK. **(Main applicant)**
- 2021 **Virtuell testbädd för strategisk stads- och energiplanering genom integrerade digitala modeller**, from Formas smart built. Project leader Joakim Widén, Uppsala university. My responsibilities: Scientific work, supervision. Project duration: 12/2021-11/2025. Project budget: 4 449 kSEK. Received funding (UU): 2 224 kSEK. Received funding for Joakim Munkhammar group: 500 kSEK. **(Co-applicant)**
- 2020 **Dynamic Mobility Nudge: Shaping sustainable urban mobility behaviour with real-time, user-generated and public open data**, from JPI Urban Europe (Swedish Energy Agency and Vinnova for Swedish participants). Project leader Europe Veronika Hornung-Prähauser (Salzburg Research), project leader Sweden Mahmoud Shepero (3/2021-9/2022), Joakim Munkhammar (10/2022-4/2024). My responsibilities: Work package completion, scientific work, mentorship, hackathon participation, meeting organization, economic and administrative responsibilities for Uppsala University's part (after 10/2022). Project duration: 3/2021-4/2024. Project budget: 10 183 kSEK, received funding (UU): 1 332 kSEK. Received funding for Joakim Munkhammar group: 1 332 kSEK. **(Co-applicant)**
- 2018 **Probabilistic Forecasting for Battery Management**, from the Swedish Energy Agency SamspeEl programme with project leader Patric Ollas (RISE). My responsibilities: Scientific work, supervision, economic and administrative responsibilities for Uppsala University's part. Project duration: 1/2019-12/2020. Project budget: 3 559 kSEK. Received funding (UU): 1138 kSEK. Received funding for Joakim Munkhammar group: 1 138 kSEK. **(Co-applicant)**
- 2018 **Activity-Based Urban Building and Mobility Energy Modeling (UBMEM) for Planning of Future Cities**, from Viable Cities strategic innovation programme with project leader Joakim Widén (Uppsala University). My responsibilities: Scientific work and Ph.D. student supervision. Duration: 9/2018-12/2021. Total budget: 7 886 kSEK. Received funding (UU): 936 kSEK. Funding for Joakim Munkhammar group: 140 kSEK. **(Co-applicant)**
- 2017 **Modeling and implementation of smart-charging using the Annex D standard: Initial study**, from the Swedish Electromobility Centre with project leader Joakim Munkhammar (Uppsala University). My responsibilities: work package completion, scientific work, Ph.D. student supervision, economic and administrative responsibilities. Project duration: 1/2018-6/2019. Project budget: 1 100 kSEK. Received funding (UU): 1 000 kSEK. Received funding for Joakim Munkhammar group: 1 000 kSEK. **(Main applicant)**
- 2016 **Energy storages for regional and local integration of heat and power systems**, from the Swedish Energy Agency SamspeEl program. Project leader: Magnus

- Åberg (Uppsala University). Project duration: 1/2017-12/2018. My responsibilities: Scientific work. Project budget: 2 732 kSEK. Received funding (UU): 2 732 kSEK. Funding for Joakim Munkhammar group: 200 kSEK. **(Co-applicant)**
- 2016 **Development and evaluation of forecasting models for solar power and electricity use over space and time**, from Swedish Energy Agency SamspeEl program. My responsibilities: project leadership, work package completion, scientific work, Ph.D. student supervision, economic and administrative responsibilities. Project duration: 1/2017-12/2020. Project budget: 4 729 kSEK Received funding (UU): 4 055 kSEK. Received funding for Joakim Munkhammar group: 4 055 kSEK. **(Main applicant)**
- 2015 **Increased Self Consumption of Photovoltaic Power for Electric Vehicle Charging in Virtual Networks**, an EU-ERA.NET Smart Grids plus project, with project leader Per Wickman (Solelia Greentech AB). Swedish research leader Joakim Munkhammar (Uppsala University). My responsibilities: work package completion, scientific work, supervision, economic and administrative responsibilities for Uppsala University's part. Project duration: 4/2016-4/2018. Project budget: 8 292 ksek. Received funding (UU): 2 794 kSEK. Received funding for Joakim Munkhammar group: 2 794 kSEK. **(Main applicant from a Swedish university)**
- 2015 **Evaluation of technological solutions for managing extensive connection of photovoltaic systems in electricity distribution grids** from the Swedish Energy Agency program "El och bränsle från solen", with project leader Joakim Widén (Uppsala University). Project duration: 7/2015-1/2017. My responsibilities: Scientific work. Project budget: 1 116 kSEK. Received funding (UU): 1 083 kSEK. Received funding for Joakim Munkhammar group: 289 kSEK. **(Co-applicant)**
- 2015 **Developing holistic business models and IT services for prosumers** from Swedish Energy Agency program E2B2. Project leader: Cajsa Bartusch (Uppsala University). My responsibilities: scientific work and master student supervision. Project duration: 7/2015-6/2018. Project budget: 9 297 kSEK. Received funding (UU): 2 310 kSEK. Funding for Joakim Munkhammar group: 400 kSEK. **(Co-applicant)**
- 2015 **Characterization of extensive photovoltaic power generation on city level** from Solelprogrammet, financed by the Swedish Energy Agency. Project leader Joakim Widén (Uppsala University). My responsibilities: Scientific work. Project duration: 1/2015-3/2017. Project budget: 1 974 kSEK. Received funding (UU): 680 kSEK. Funding for Joakim Munkhammar group: 228 kSEK. **(Co-applicant)**

Invited project participation (6)

These are projects that my group has been invited to contribute to as collaborators with specialist knowledge for specific tasks.

- 2023-2024 **Churches as flexibility resources in the future power system** from Swedish Energy Agency 2022-2024. Project leader: Johannes Wikström, Church of Sweden. My responsibilities: research and Ph.D. student supervision. Funding for Joakim Munkhammar group: 500 kSEK.
- 2022-2026 **SOLVE - Solelforskningscentrum (Solar Electricity Research Center Sweden)** from Swedish Energy Agency 2022-2026. Project leader: Marika Edoff. My responsibilities: Application assistant, collaborator, Ph.D. student supervisor (three Ph.D. students in total) and deputy theme leader. Received funding for Joakim Munkhammar group: 500 kSEK/year, in total 1 500 kSEK 2023-2025.

(This will likely be extended to 2027 for late Ph.D. student start in the competence centre)

- 2021-2022 **Departmental postdoc funding**, specific from the Department of Civil and Industrial Engineering to complete 1/2 postdoc position. My responsibilities: postdoc mentorship. Received funding for Joakim Munkhammar group: 400 kSEK/year, in total 800 kSEK.
- 2020-2023 **Flexibility and energy efficiency in buildings with PV and EV charging** from Swedish Energy Agency 2020-2023. Project leader: Patrik Ollas (RISE). My responsibilities: work package completion, research and postdoc mentorship. Funding for Joakim Munkhammar group: 500 kSEK.
- 2020-2025 **Increased utilisation of the grid with combined solar- and wind power parks** from the Swedish Energy Agency 2020-2023. Project leader: David Lingfors. My responsibilities: research and Ph.D. student supervisor. Funding for Joakim Munkhammar group: 700 kSEK.
- 2020-2023 **Automatic mapping of solar panels and generation of solar forecasts through aerial imagery and machine learning**, from Swedish Energy Agency, 2020-2023. Project leader: Johan Lindahl (Becquerel Sweden). My responsibilities: research and postdoc mentorship. Funding for Joakim Munkhammar group: 376 kSEK.

Scholarships (6)

- 2015 **Lundström-Åmans scholarship**, at Uppsala University, for mathematical investigations of polynomial approximation methods in probability theory with applications to power systems research. The research project scholarship received a grant of 50 kSEK. **(Main applicant)**
- 2015 **Liljewalchs travel scholarship**, Uppsala University, for conference visit to PVSEC, Germany 2015. A grant of 15 kSEK was received. **(Main applicant)**
- 2013 **Liljewalchs travel scholarship**, Uppsala University, for conference visit to ECEEE summer study, France 2013. A grant of 15 kSEK was received. **(Main applicant)**
- 2012 **Formas grant**, Research presentation and conference visit to WREF, USA 2012. A grant of 20 kSEK was received. **(Co-applicant)**
- 2012 **Håkansson's travel scholarship** for research visits to Cambridge University for a research collaboration and stay. A grant of 32 kSEK was received. **(Main applicant)**
- 2001-2007 **Stiftelsen Elvira och Erik Ljungbergs minne scholarship**, a student scholarship based on origin and academic excellence, awarded each year on achievement basis, awarded seven consecutive years as an undergraduate student, 7-11 kSEK per year. **(Main applicant)**

OTHER SCIENTIFIC MERITS

Talks

- 2024 "Marknadsdeltagande för lokal solelproduktion och batterilager för Kila kyrka", webinar with the Swedish church on our contributions to the Swedish Energy Agency-funded project "Churches as flexibility resources in the future power system", 17 september 2024. (Invited)

- 2024 "PV's role in the urban energy system", webinar including other researchers in SOLVE, arranged by Energiforsk, 2024.
- 2018 "Forskningsresultat SolarCharge2020", Swedish solar fair (Solelmässan), Uppsala, Sweden, 27 November 2018. (Invited)
- 2018 "Electric vehicle charging in space and time", presentation for Uppsala society of technology, Ångström laboratory, Uppsala, Sweden 18 October 2018. (Invited)
- 2018 "Electric vehicle charging in space and time", Docent lecture 5 September 2018.
- 2017 "Forskningsläget i projektet. Hur kan resultaten från projektet tillämpas i stor skala?" at the SolarCharge2020 public event "Ladda bilen med sol - smart och ekonomiskt!", Norrland's Nation, Uppsala, 28 september 2017. (Invited)
- 2011- 1-2 research presentations at international conferences and research visits per year.

Software development

- 2023 **MCMForecasting**, Matlab code for generating Uniform and Empirical Probability Density Distribution MCM forecasts, Github 2023.
- 2023 **MCMScenarios**, Matlab code for MCM scenario forecasting, Github 2023.
- 2022 **N2Downscaling**, developed in Matlab, Github (as N2) 2022.
- 2021 **MultiComponentMarkov**, developed in Matlab, Github 2021.
- 2019 **MCM model for forecasting**, developed in Python, GitHub 2019.
- 2017-2019 **PolyDist**, a complete package for the polynomial probability distribution method (published in 2017), Matlab on MathWorks file exchange 2017 and Python on Github 2019.
- 2017 **Electric vehicle home-charging**, user-friendly (with GUI) software for the EV home-charging model published in 2013. This was available for free download from the division homepage, and has been used in multiple student thesis and research projects. This was programmed using Matlabs special GUI environment.
- 2017 **Solar irradiance variability**, user-friendly (with Matlabs GUI environment) software of the N-state, two-state and copula-based models for generating synthetic solar irradiance. This was programmed using Matlab.

SCIENTIFIC EDITORIAL WORK

- 2021 **Book proposal reviewer** for Elsevier 2021.
- 2020 **Guest editor** for Energies special edition "Electric vehicle charging modeling".
- 2019 **Recognized reviewer** status achieved for Elsevier Applied Energy 2019.
- 2016 **Outstanding contribution in reviewing** from Elsevier Solar Energy 2016.
- 2016 **Recongized reviewer** from Elsevier Solar Energy 2016.
- 2011- **Scientific journal reviewer** for in particular journals Applied Energy (Elsevier), Solar Energy (Elsevier),s Journal of Renewable and Sustainable Energy (AIP) and Scientific Reports (Nature).

ADMINISTRATIVE MERITS

- 2024 **Research program evaluation**, I participated in the university-wide research program evaluation (KoF) at Uppsala University, including assisting to write self-evaluation and participating in interview by expert panel. This evaluated the research program "Civil Engineering and Built Environment", which I have been part of since it started in 2019. The evaluation included the Ph.D. program within.
- 2022 **Master student mentorship** for a visiting master student.
- 2022 **Ph.D. student mentorship** for two international Ph.D. student visitors for my group at Uppsala University. In addition to this co-mentor of two additional visiting Ph.D. students.
- 2021-2023 **Postdoc mentorship** for two postdocs at Uppsala University, including recruitment.
- 2020-2021 **Program coordinator** for the international Master Program in Energy Technology (KIC InnoEnergy MSc Entech) 1/2020 - 1/2021.
- 2018-2020 **Council member**, Energy Technology Master program 2018-2020.
- 2016- **Budget responsibility** for all of the research projects that I have been principal investigator for at Uppsala University, since 2015. This also includes parts of projects that I have been responsible for.
- 2012-2015 **Consortium assistant** for the building consortium in the Program Energy Systems research school. Secretary and responsible for co-organizing consortium meetings.

DECISION-MAKING AND LEADERSHIP

- 2023 **Organizing DyMoN research consortium visit** for the DyMoN research project in Uppsala 2023.
- 2022- **Deputy theme leader** for Theme 3 in the research centre SOLVE. Responsibilities include Ph.D. student supervision, organizing parts of full SOLVE-meetings two times per year with researchers and industry representatives, including participation.
- 2020-2021 **Energy Technology Master Program**. As a continuation from previous program responsible for the Energy Technology Program, I led the process for extending the master program in Uppsala by adding year 1 (in addition to only year 2 previously) to Uppsala University, which was eventually enacted in fall 2021.
- 2020-2021 **Program coordinator** for the international Master Program in Energy Technology (KIC InnoEnergy, M.Sc. EnTech) 1/2020 - 1/2021.
- 2016- **Group leader** for the Joakim Munkhammar energy systems group at the division of Solid State Physics at Uppsala University (2015-2018), and at the division for Civil Engineering and Built Environment (2018-). This group has included Ph.D. students, postdocs and visitors.

ADMINISTRATIVE DOCUMENTS

- 2024 Widén J., **Munkhammar J.**, Åberg M., Shadram F., Johari F., Self-evaluation of the research program "Civil Engineering and Built Environment", Uppsala University 2024.
- 2021 **Munkhammar J.**, Mihranyan A., Verksamhetsrapport masterprogrammet i energiteknik, Uppsala University, report 2021. (Activity report for the master program)
- 2020 **Munkhammar J.**, Self-evaluation of the Master Program i Energy Technology, Uppsala University, report 2020.
- 2020 Widén J., **Munkhammar J.**, Verksamhetsrapport masterprogrammet i energiteknik, Uppsala University, report 2020. (Activity report for the master program)

EXPERIENCE OUTSIDE THE UNIVERSITY ENVIRONMENT

- 2024- **IEA task 16**, expert from Sweden.
- 2023 **Jury member**, Uppsala Sustainability Hackathon, May 2023.
- 2012- **Co-founder, board member and technical director** of the Johnny Munkhammar memorial foundation. Responsibilities include selection of a recipient of a yearly award and co-organizing one major public seminar in Stockholm each year plus technical responsibility of webpage and outreach infrastructure.

COLLABORATION WITH OTHER UNIVERSITIES AND THE SURROUNDING COMMUNITY

National university research collaborations

- 2024- **Mälardalen University**. Collaboration on solar irradiance decomposition modeling research for a journal paper (under review).
- 2023- **Department of art history; conservation at Uppsala University**. Collaboration on research regarding stationary battery storage operation for Swedish churches and for heating of churches.
- 2022-2023 **Karlstad University**. Collaboration on solar energy research for a conference paper (including Dr. Adrian Muntean).
- 2020- **Department of Earth Sciences and Uppsala University**. Collaboration on combined wind and solar park research (including Dr. Johan Arnqvist).
- 2015-2017 **Mathematics department at Uppsala University**, on the development of our statistical models for solar irradiance variability and electric vehicle charging. Also collaborations on the PolyDist model, published as paper and as code in both Matlab and Python (publications including Dr. Jesper Rydén).
- 2016-2018 **IT department at Uppsala University**. A collaboration on probabilistic forecasting of solar power, electricity use and net-load, resulting in a publication (including Dr. Andreas Svensson).

- 2019- **Dalarna University.** Collaborations in the research project "Activity-Based Urban Building and Mobility Energy Modeling (UBMEM) for Planning of Future Cities", and since 2022 collaborations and assistant supervision within the Swedish Solar Electricity Research Centre (SOLVE). Also resulting in publications (including Dr. Pei Huang and Dr. Xingxing Zhang). Including invited visits.
- 2010-2015 **Royal Institute of Technology.** Collaborations on electric vehicle charging and solar energy research, resulting in publications (including Dr. Pia Grahn, Dr. Lennart Söder and Dr. Karin Alvehag).
- 2015-2017 **Nordita.** Collaborations on statistical modeling for the PolyDist model, resulting in a scientific publication (including Dr. Lars Mattsson).

Industry and municipal collaborations

- 2024- **Energikontoret i Mälardalen.** A collaboration on master thesis work.
- 2024- **Morgongåva e-commerce center.** A collaboration regarding the energy system of their business park and e-commerce center through the research project "Pre-study of Morgongåva business park energy system".
- 2023- **Church of Sweden.** A collaboration on modeling stationary battery storage operation and heating of churches in research project "Churches as flexibility resources in the future power system", also collaborations within SOLVE.
- 2022-2023 **Ellevio.** A collaboration regarding a Ph.D. student project (Reza Fachrizal) as co-supervisor.
- 2021-2024 **Varberg Energi.** Collaborations on solar-wind hybrid park and city-wide energy modeling in research project "Increased utilisation of the grid with combined solar- and wind power parks".
- 2020- **Becquerel Sweden.** Collaborations on research projects "Automatic mapping of solar panels and generation of solar forecasts through aerial imagery and machine learning" and "Extrication of grid capacity and flexibility based on simulated aggregated solar power production that considers the orientation of individual systems". Also collaborations on master student projects.
- 2018-2024 **RISE.** Collaborations on the research projects "Probabilistic Forecasting for Battery Management" and "Flexibility and energy efficiency in buildings with PV and EV charging".
- 2018- **Vattenfall RnD AB.** Collaborations on the research project "Modeling and implementation of smart-charging using the Annex D standard: Initial study", on grid-impact research and on the market participation of stationary battery storage and solar parks within SOLVE.
- 2017-2018 **China Euro Vehicle Technology AB.** A collaboration in the research project "Modeling and implementation of smart-charging using the Annex D standard: Initial study".
- 2015-2020 **Uppsala Parkerings AB.** A collaboration on the SolarCharge2020 research project. Also collaborations on teaching, in particular "Independent projects in sociotechnical systems".
- 2018-2021 **WSP.** Collaborations on the research project "Activity-Based Urban Building and Mobility Energy Modeling (UBMEM) for Planning of Future Cities" and master thesis work.

- 2015-2020 **Solelia Greentech AB.** Collaborations on the SolarCharge2020 research project. Also collaborations on teaching, in particular "Independent projects in sociotechnical systems" and collaborations on bachelor and master thesis projects.
- 2014-2019 **Herrljunga elektriska.** Collaborations on research projects, in particular "Evaluation of technological solutions for managing extensive connection of photovoltaic systems in electricity distribution grids" and "Flexibility and energy efficiency in buildings with PV and EV charging".
- 2014- **Vasakronan AB.** Collaborations on the research projects "Characterization of extensive photovoltaic power generation on city level", "Solar parks as a flexible resource in space and time", "Smart and bidirectional workplace electric vehicle charging as electricity grid support" and within SOLVE. Also collaborations on teaching on "Independent projects in sociotechnical systems" and the solar energy courses.
- 2013-2014 **Sweco.** Collaborations on master thesis work and on two reports on the impact of electric vehicle charging on the electricity grid (see other publications).
- 2013 **STRI.** A collaboration on demand-response and the electricity grid with EV charging (see other publications).
- 2012- **Uppsala Municipality.** Collaborations on research projects SolarCharge2020 project and "Virtuell testbädd för strategisk stads- och energiplanering genom integrerade digitala modeller". Also collaborations on courses "project in infrastructure systems", "Independent projects in sociotechnical systems" and master thesis work.
- 2012- **STUNS Energi.** Collaborations on research projects "Development and evaluation of forecasting models for solar power and electricity use over space and time" and "Pre-study of Morgongåva business park energy system". Also collaborations on teaching, in particular "Independent projects in sociotechnical systems" and other thesis work.

International research collaborations

- 2023- **Southern University of Denmark,** Denmark. Collaborations on electric vehicle charging scheduling optimization, resulting in a series of publications (including Ph.D. student Kun Qian).
- 2023- **Izmir Institute of Technology,** Turkey. Collaborations of transportation (with Dr. Elia Odabasi) and mathematical modeling research, resulting in publications (including Dr. Meltem Turan).
- 2022 **Hong Kong City University,** Hong Kong. A collaborating on smart charging research, resulting in a publication (including Dr. Yongjun Sun).
- 2022 **Aalto University,** Finland. A collaboration on smart charging research (including Dr. Marko Lovati).
- 2022-2024 **Salzburg research,** Austria. A collaboration regarding research on transportation modeling in cities in the DyMoN project. This has resulted in deliverables and final report for the DyMoN project (see other scientific publications).
- 2021-2023 **MINES ParisTech - PSL University, Centre for processes, renewable energies and energy systems (PERSEE),** France. collaborations on forecasting and battery operation scheduling optimization research, resulting in publications (including Dr. Dennis van der Meer).

- 2019 **UC San Diego**, USA. A collaboration on battery operation scheduling optimization research resulting in a publication (including Dr. Guang Wang).
- 2019-2021 **Singapore Institute of Manufacturing Technology**, Singapore. Collaborations on probabilistic solar forecasting research, resulting in publications (including Dr. Dazhi Yang).
- 2018 **Technical University Denmark**, Denmark. Collaborative research on a Markov model for household electricity use (with Dr. Jon Liisberg).
- 2018-2020 **ANU College of Science**, Australia. Collaborative research on solar irradiance variability and electric vehicle charging in space and time, resulting in publications (including Dr. Jamie Bright).
- 2017 **University of Washington**, USA. Collaborative research on solar irradiance variability in space, resulting in a publication (including Dr. Laura Hinkelman).
- 2015-2020 **The Arctic University of Tromsø**, Norway. A collaboration on electric vehicle charging and solar energy research on city scale, resulting in publications (including Dr. Tobias Boström and Dr. Clara Good).
- 2013-2017 **Cambridge University (Energy Efficient Cities Initiative)**, United Kingdom. A collaboration on electric vehicle charging in cities, resulting in publications (including Dr. Justin Bishop, Dr. Juan José Sarralde, Dr. Wei Tian and Dr. Ruchy Choudhary).

National and international research visits, stays and hosts

- 2024 **International Energy Agency (IEA) task meeting Task 16**, Roskilde, Denmark. Invited research meeting on collaborative research 2024.
- 2023 **Uppsala University**, Sweden. Hosting the JPI Urban Europe-funded DyMoN research project at Uppsala University May 2023.
- 2022 **Salzburg Research**, Salzburg, Austria. Invited on-site research stay in the JPI Urban Europe-funded DyMoN research project in May 2022. On-site collaborations on deliverables for the project, see other research publications.
- 2022- **SOLVE**, Sweden. Assisting in planning and participating in the competence centre SOLVE meetings at various research institutes around Sweden two times per year. Interactions with companies and researchers, presenting research and working on collaborations, this includes organizing seminar sessions.
- 2019 **UC San Diego**, San Diego, USA. Invited on-site research stay 2019, initiating collaborative research within Professor Jan Kleissl's research group.
- 2018 **IEA task meeting Task 16**, Rapperswil, Switzerland. Research meeting and discussions on Task 16 work.
- 2017-2019 **Vattenfall RnD**, Stockholm and Älvkarleby sites. Invited visits with research discussions. This resulted in research project "Modeling and implementation of smart-charging using the Annex D standard: Initial study".
- 2016 **Fraunhofer ISE**, Karlsruhe, Germany. Invited on-site research visit 2016.
- 2014 **Arctic University**, Tromsø, Norway. Invited on-site research visit on collaborative work together with Professor Tobias Boström's research group 2014. This resulted in the research project "Increased Self Consumption of Photovoltaic Power for Electric Vehicle Charging in Virtual Networks".

- 2013-2014 **University of Cambridge**, Cambridge, UK. Two stays in Cambridge, UK, working in collaboration professor Dr. Ruchi Choudhary's research group. Invited based on having received Håkansson's travel grant.
- 2013 **Oxford University**, Oxford, UK. Research visit.
- 2012 **National Renewable Energy Laboratory (NREL)**, Golden, USA. Invited research visit.
- 2011- **Scientific conferences**, on-site to in total 21 international scientific conferences, including presentations of research. Conferences have included ECEEE summer study (France), Grid integration workshops (Germany, Austria, Sweden, Ireland, Netherlands, Denmark), IEEE electric vehicle conference (Italy), IEEE PVSC (USA), WREF (USA), EU-PVSEC (Germany, Sweden), EEVC (Switzerland) and PVPIC (Germany).

ENGAGEMENTS REGARDING THE THIRD TASK

I have published 17 popular scientific papers and books, 4 press releases on scientific projects and scientific achievements and 8 interviews.

Press releases (4)

- 2020 "New solar forecasting model performs best", Uppsala University news June 2020. (This then appeared in Swedish, English, Turkish, Arabic and Chinese news)
- 2018 "Nytt samarbete ska utveckla smart elbilsladdning", press release for the Swedish Electromobility Centre project "Modeling and implementation of smart-charging using the Annex D standard: Initial study", Uppsala University 2018.
- 2017 "Stabil solen behöver pålitliga prognoser", Press release for the Energy Agency funded project "Development and evaluation of forecasting models for solar power and electricity use over space and time", Uppsala University 2017.
- 2015 "Elbilar och solen påverkar framtidens elnät", press release for my Ph.D. defense at Uppsala University 2015.

In terms of further media outreach interaction have also participated in 8 interviews regarding the research that I have conducted:

Interviews (8)

- 2024 "Är det kört för oss på den här planeten?", survey interview among scientists for news periodical Dala-Demokraten 13 Nov 2024.
- 2023 "Energisystemforskning vid Uppsala universitet med internationellt genomslag", Uppsala University news 3 March 2023.
- 2020 "Hur fem miljoner elbilar ska laddas", podcast Solcellskollen April 2020.
- 2018 "Faktiskt oklart om samhället kommer förlora 150 miljarder per år", Radio Sweden (Sveriges Radio), interviewed among several experts on electric vehicle charging, 2018.
- 2018 "Algoritmer ger snabbare och effektivare elbilsladdning", Swedish Electromobility Centre website 2018.

2018	"Smart laddning gör att elnätet står pall", OM (Sollentuna municipal magazine) no. 4, 2018.
2018	"Så ska elsystemet klara elbilsrevolutionen", Swedish technical periodical NyTeknik Nr. 4, 2018.
2016	"Uppsala i EU-projekt om solcellsladdning", electric vehicle popular periodical Elbilen Sverige No. 5, 2016.

TEACHING COURSES

2024-	Energy flows in the built environment , 5hp, 1st cycle. Project supervisor. Language: English. Extent: 4h. Number of students: 7 (2024).
2023-	Introduction to construction engineering , 5hp, 1st cycle. Seminar leader, course assistant. Language: Swedish. Extent: 40 hours per year 2023-2024. Cumulative: 80 hours. Number of students: 72 per year.
2022	Writing scientific applications , 2hp, 3rd cycle. Lecturing, leading seminars and examiner. Language: English. Extent: 20 hours. Number of students: 2.
2022	Introductory course for the master program in physics , 5 hp, 2nd cycle. Supervising a student project. Language: English. Extent: 5 hours. Number of students: 1.
2021-	Presenting scientific results , 2hp, 3rd cycle. Establishing, organizing and supervising. Language: English. Extent: 10 hours. Number of students: 4.
2020-2023	District heating systems , 5hp, 2nd cycle. Reading and grading reports. Language: Swedish. Extent: 8 hours per year, 32 hours in total. Number of students: 16 per year.
2019-2020	Advanced solar radiation theory , 3 hp. 3rd cycle. Establishing, organizing, lecturing and project supervision. Language: English. Extent: 60 hours. Number of students: 3.
2020-	Projects in infrastructure systems , 5 hp, 2nd cycle. 2018-2019: Assistant course manager, seminar leader, project supervisor. 2020-: Course manager, seminar leader, project supervisor. Language: English. Extent: 570 hours. Number of students: 20-30 per year.
2019-2024	Solar thermal technologies , 5 hp, 2nd cycle. Secondary examiner. Language: English. Extent: 5 hours. Number of students: 2 per year.
2016-2017	Grid connection of variable energy sources , 5 hp, 2nd cycle. Lecturer. Language: English. Extent: 10 hours per year, 20 hours cumulative. Number of students: 20-30 per year.
2015-2017	Presentation techniques , 5 hp, 1st cycle. Commenting and grading student presentations and written reports. Language: Swedish. Extent: 40 hours per year, 120 hours cumulative. Number of students: 30 per year.
2014	Perspectives on energy systems (POES) , 7.5 hp. 3rd cycle. Ph.D. course commissioned by the Swedish Energy Agency. Guest lecturer 2014. Language: English. Extent: 10 hours. Number of students: 30.
2013-2015	Renewable energy technology , 5 hp, 1st cycle. Computer lab assistant. Extent: 15 hours per year, 45 hours cumulative. Language: English. Number of students: 10-30 per year.

- 2012- **Independent project in sociotechnical systems engineering**, 15 hp, 1st cycle. Course assistant, seminar leader and project supervisor for 2-9 students (1-3 projects) per year 2012-2020. Second examiner 2019-2024. Extent: 60 hours per year 2012-2020, 30 hours per year 2022-2024. Cumulative 620 hours. Language: English. Number of students: 20-40 per year.
- 2011-2020 **Energy efficiency in buildings**, 5 hp, 1st cycle. Commenting and grading reports, assisting in seminars. Extent: 20 hours per year, cumulative 180 hours. Language: Swedish. Number of students: 30 per year.
- 2011- **Solar energy - technology and systems**, 10 hp, 2nd cycle. Lecturer, course assistant, exam designer, mini project supervisor, study visit guide and lab assistant. Director of solar irradiance part since 2017. Manning half of the course with Ph.D. students and researchers from our division. Extent: 60 hours per year 2011-2017. 110 hours per year for 2018-2021 and 500 hours in total for 2022-2024: cumulative 1360 hours. Language: English. Number of students per year: 30-50.
- 2011- **Solar energy technologies for electricity production**, 5 hp, 2nd cycle. Lecturer, course assistant, exam designer, mini project supervisor, study visit guide and lab assistant. Director of solar irradiance part since 2017. Manning half of the course with Ph.D. students and researchers from our division. Extent: co-teaching with Solar Energy - Technology and Systems. Language: English. Extent: included in "Solar Energy - Technology and Systems". Number of students per year: 10-20.

Bachelor and master student supervision

I have been supervisor/subject reader for over 54 master thesis students, and over 48 bachelor thesis students. I have also been examiner for 16 master students.

PEDAGOGICAL EDUCATION

- 2018 **Pedagogical project course.** (Three weeks full time)
- 2017 **Academic Teacher Training Course.** (Five weeks full time)
- 2017 **Supervising Ph.D. students.** (Three weeks full time)
- 2015 **Doctoral Supervisor Training Course within Science and Technology.** (Two days full time)

Total number of weeks full time pedagogical course work: **11.5** (17 hp).

Development of new educational program year

- 2020-2021 **Energy Technology Master Program.** As a continuation from previous program responsible for the Energy Technology Program, I led the process for extending the master program in Uppsala by adding year 1 (in addition to only year 2 previously) to Uppsala University, which was eventually enacted in fall 2021 (after my period ended).

Development of new courses

- 2022 **Writing scientific applications**, 2hp, 3rd cycle. Establishing, lecturing, seminar leader and examiner.
- 2021 **Presenting scientific results**, 2hp, 3rd cycle. Establishing, organizing and supervising.
- 2019 **Advanced solar radiation theory**, 2hp, 3rd cycle. Establishing, lecturing and supervision.
- 2019 **Ph.D. student seminar series**, 3hp, 3rd cycle course. Establishing and supervising.

Improvements of existing courses

Introduction to construction engineering, 1st cycle. Assisting in revising course material and course structure 2023-2024.

Projects in infrastructure systems, 2nd cycle. Revising the history seminar, and course design, adding lecture, course compendium and completely making the course online 2021 and 2022. Updating seminars and re-fitting for completely on-site 2023.

Solar Energy - Technology and Systems, 2nd cycle. Revising lecture, exam questions, developing course compendium, later published as book. Completely making the course-components online 2020. Updating the lecture for 2022 on-site course.

Solar Energy Technologies for Electricity Production, 1st cycle. Revising lecture, exam questions, developing course compendium, later published as book. Completely making the course-components online 2020. Updating the lecture for 2022 on-site course.

Perspectives On Energy Systems (POES), 3rd cycle. Adding a research-based lecture on the synergies between electric vehicle charging and solar power to the course.

Grid Connection of Variable Energy Sources, 1st cycle. Adding a research-based solar variability lecture to the course.

Course material development

- 2022 **Infrastructure systems course compendium** was developed for the 2nd cycle "Project in infrastructure systems" course.
- 2019 **Solar Radiation Theory**, development of course book for 2nd cycle courses "Solar Energy - Technology and Systems", "Solar Energy Technologies for Electricity Production", co-written with prof. Joakim Widén.

Software development for teaching

- 2021 **MCM model package** for Python, published on Github. It was used for bachelor thesis work 2021 and by Ph.D. students in research projects.
- 2016 **Electric vehicle home-charging**, I developed user-friendly (with GUI) software based on the EV home-charging model published in 2013. It is sometimes referred to as the Grahn-Munkhammar model in the literature. The model has been used in scientific work and in student thesis projects.

PEDAGOGICAL LEADERSHIP

In terms of pedagogical leadership it should be emphasized that teaching on courses "Presentation techniques" and "Presenting scientific results" in essence has implied teaching pedagogical aspects associated with engineering and science.

Course director and leadership

Projects in infrastructure systems, 5 hp, 2nd cycle. Assistant course director 2019, course director 2020-.

Master degree project director and examiner, 30 hp, 2nd cycle. Energy Technology Master program 2018-2020.

Council member, Energy Technology Master program 2018-2020.

Independent Project in Sociotechnical Systems Engineering, 15 hp, 2nd cycle. Second examiner 2019-2022.

Solar Energy - Technology and Systems, 2nd cycle, 10 hp. Responsible for manning approximately half the course since 2017.

Solar Energy Technologies for Electricity Production, 5 hp, 1st cycle. Responsible for manning approximately half of the course since 2017.

Educational coordination roles

2020-2021 **Program coordinator** for the international Master Program in Energy Technology (KIC InnoEnergy MSc Entech) January 2020-January 2021. Responsibilities: Leading the program, chairing the program council, reporting to the faculty board of teaching, informing and keeping dialogue with program students and assisting in student admissions. Also leading program development, including self-evaluation of the program, which was finished 2020. I also led the process for extending the master program in Uppsala by adding year 1 (in addition to only year 2 previously) to Uppsala University, which was then enacted in fall 2021.

MENTORSHIP/SUPERVISION

2022 **Reina Kobayashi**, visiting master student working on road widening, from Osaka Institute of Technology, Japan.

2022 **Kun Qian**, visiting Ph.D. student working on electric vehicle charging, from Danish Southern University, Denmark.

2022 **Elia Odelbasi**, visiting Ph.D. student, working on bike sharing, from Ege University, Turkey, mentor.

2021-2022 **Mahmoud Shepero**, postdoc mentor.

2021-2023 **Âzeddine Frimane**, postdoc mentor.

2018-2019 **Jon Liisberg**, visiting Ph.D. student from DTU, Denmark, working on electricity use modeling, co-mentor.

2016 **Bilal Babar**, visiting Ph.D. student from Tromsø, Norway, working on modeling electric vehicle charging and solar energy use, co-mentor.

PEDAGOGICAL STUDY AND DISSEMINATION OF PEDAGOGICAL KNOWLEDGE

- 2020 **Engineering pedagogical publication.** Based on peer-reviewed work on the extra-curricular course "pedagogical project course", I published a report on the use of open problems in engineering sciences: Munkhammar J., Enhancing creative and critical thinking with open problems in engineering sciences: an example from solar energy, pedagogical report Uppsala University (DIVA) 2020.

PEDAGOGICAL AND OUTREACH PRIZES AND AWARDS

- 2022 **Best course of the year award** for the course "Solar Energy Technology and Systems" on the Energy Systems Engineering program 2021. Motivation: "Flawless course with teacher that care about their students", April 2022. (Presented to the course director Jonathan Scragg, I have responsibility for a lecture, a lab, mini project supervision, study visit, exam design, grading and for manning approximately half of the course, since our division receives half of the course funds and I am delegated to do the manning)
- 2022 **Best course of the period award** for the course "Solar Energy Technology and Systems" on Energy Systems Engineering program fall 2021. Motivation: "It is precisely what a technology and systems course should be", March 2022. (Presented to the course director Jonathan Scragg, I have responsibility for a lecture, a lab, mini project supervision, study visit, exam design, grading and for manning half of the course, since our division receives half of the course funds and I am delegated to do the manning)
- 2018 **Conference promotion prize.** A prize for best promoting the Solar Integration Workshop, Stockholm 2018.

POPULAR SCIENCE PUBLICATIONS (15)

- 2016 **Munkhammar J.**, Självkörande elbilar är framtidens transportsystem, Allt om vetenskap No. 12, 2016.
- 2015 **Munkhammar J.**, Mankind's Universe, Amazon 2015. (Book)
- 2015 **Munkhammar J.**, Elbilarna kommer - men hur ska de laddas?, Allt om vetenskap no. 7, 2015.
- 2015 **Munkhammar J.**, John Nash: En fenomenal men besvärlig hjärna, Allt om vetenskap no. 7, 2015.
- 2014 **Munkhammar J.**, Svarta hål – frontlinjen där teorier drabbar samman, Allt om Vetenskap no. 5 2014.
- 2014 **Munkhammar J.**, Människans universum, Nomen Förlag 2014. (Book)
- 2013 **Munkhammar J.** Mattsson L., Det kosmiska stoftetmysteriet, Allt om Vetenskap 2013.
- 2013 **Munkhammar J.**, Grahn P., Hellgren M., Norra Djurgårds staden: Lätt att göra rätt, Energimagasinet no 2, 2013.
- 2013 **Munkhammar J.**, Albert&Fiffis finurliga upptäckter: Matematikmysteriet, Fram-Steget förlag, 2013. (Book)

- 2011 **Munkhammar J.**, Nobelpriset i fysik 2011, Allt om vetenskap no. 12, 2011.
- 2011 **Munkhammar J.**, Strålande svarta hål, Allt om vetenskap no. 7, 2011.
- 2010 **Munkhammar J.**, Solen flyger! Barns tankar om universum, Pupill förlag 2010.
(Book)
- 2010 **Munkhammar J.**, Den holografiska gravitationen, Allt om vetenskap no. 5, 2010.
- 2008 **Munkhammar J.**, Evolutionen och det kollektiva, Alba No. 2, 2008.
- 2007 **Munkhammar J.**, Vad betyder årets ekonomipris? - En introduktion till teorin om allokeringsmekanismer, Timbro report 2007.