Elisa Kallioniemi, Ph.D.
Postdoctoral Research Fellow

November 20, 2021

Department of Psychiatry
UT Southwestern Medical Center
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EDUCATION

2012 – 2016 **Ph.D. in Applied Physics**
University of Eastern Finland, Kuopio, Finland
Thesis: Assessment of Motor Cortical Excitation-Inhibition Balance and Microstructure: Studies Combining Navigated Transcranial Magnetic Stimulation and Magnetic Resonance Imaging, Graduated with Distinction (top 5% of all Ph.D. theses)

2004 – 2012 **B.Sc. (Tech.) and M.Sc. (Tech.) in Electronics and Electrical Engineering**
(Biomedical/Bionics option)
Aalto University, Espoo, Finland

2010 **Exchange Student in Biomedical Engineering**
La Trobe University, Melbourne, Australia

RESEARCH APPOINTMENTS

2018 – now **UT Southwestern Medical Center, Dallas, TX**
Postdoctoral Research Fellow in Electromagnetic Brain Stimulation and Psychiatry
Advisors: Carol Tamminga, M.D., Zafiris Daskalakis, M.D., Ph.D. (U.C. San Diego)

2017 – 2018 **Stanford Medicine, Stanford, CA**
Visiting Postdoctoral Researcher in Electromagnetic Brain Stimulation and Psychiatry
Advisors: Nolan Williams, M.D., Keith Sudheimer, Ph.D.

2012 – 2016 **University of Eastern Finland and Kuopio University Hospital, Kuopio, Finland**
Doctoral Research in Electromagnetic Brain Stimulation
Advisor: Petro Julkunen, Ph.D.

2012 **Aalto University, Espoo, Finland**
Research Assistant in Electromagnetic Brain Stimulation
Advisor: Juha Silvanto, Ph.D.

2011 – 2012 **University of Helsinki, Helsinki, Finland**
Research Assistant in Cognitive Science
Advisor: Christina Krause, Ph.D.

2008 **Electronics and Telecommunications Research Institute, Daejeon, South Korea**
Trainee in Research, rotating at different research laboratories

PEER-REVIEWED ORIGINAL RESEARCH

(‡ = co-first authors, * = student that I mentored)

[1.] **Kallioniemi E**, Awiszus F, Pitkänen M, Julkunen P. Fast acquisition of resting motor threshold with a stimulus-response curve – possibility or hazard for transcranial magnetic stimulation applications? Clinical Neurophysiology Practice. 2021. In press.

[2.] Kekkonen V, **Kallioniemi E**, Kaarre O, Könönen M, Kivimäki P, Gröhn H, Tolmunen T, Vanninen R. Heavy drinking from adolescence to young adulthood is associated with an altered cerebellum. Alcohol, 2021;92:35–40. https://doi.org/10.1016/j.alcohol.2021.02.002.

[3.] Reijonen J*, Pitkänen M*, **Kallioniemi E,** Mohammadi A, Ilmoniemi RJ, Julkunen P. Spatial extent of cortical motor hotspot in navigated transcranial magnetic stimulation. Journal of Neuroscience Methods, 2020;346:108893. https://doi.org/10.1016/j.jneumeth.2020.108893.

[4.] Pruitt T, Wang X, Wu A, **Kallioniemi E**, Husain MM, Liu H. Transcranial Photobiomodulation (tPBM) With 1,064-nm Laser to Improve Cerebral Metabolism of the Human Brain In Vivo. Lasers in Surgery and Medicine, 2020;52(9):807–813. https://doi.org/10.1002/lsm.23232.

[5.] Sirkka J, Säisänen L, Julkunen P, Könönen M, **Kallioniemi E**, Leinonen V, Danner N. Corticospinal excitability in idiopathic normal pressure hydrocephalus: a transcranial magnetic stimulation study. Fluids Barriers CNS, 2020;17(1):6. https://doi.org/10.1186/s12987-020-0167-0.

[6.] Nguyen DTA*, Rissanen SM, Julkunen P, **Kallioniemi E**, Karjalainen PA. Principal Component Regression on Motor Evoked Potential in Single-Pulse Transcranial Magnetic Stimulation. IEEE Transactions on Neural Systems and Rehabilitation Engineering, 2019;27(8):1521–1528. https://doi.org/10.1109/TNSRE.2019.2923724.

[7.] Wang X, Dmochowski JP, Zeng L, **Kallioniemi E**, Husain M, Gonzalez-Lima F, Liu H. Transcranial photobiomodulation with 1064-nm laser modulates brain electroencephalogram rhythms. Neurophotonics, 2019;6(2):025013. https://doi.org/10.1117/1.NPh.6.2.025013.

[8.] Määttä S, Säisänen L, **Kallioniemi E**, Lakka TA, Lintu N, Haapala EA, Koskenkorva P, Niskanen E, Ferreri F, Könönen M. Maturation changes the excitability and effective connectivity of the frontal lobe: A developmental TMS-EEG study. Human Brain Mapping, 2019;40(8):2320–2335. https://doi.org/10.1002/hbm.24525.

[9.] Weiss Lucas C‡, **Kallioniemi E‡**, Neuschmelting V, Nettekoven C, Pieczewski J, Jonas K, Goldbrunner R, Karhu J, Grefkes C, Julkunen P. Cortical Inhibition of Face and Jaw Muscle Activity and Discomfort Induced by Repetitive and Paired-Pulse TMS During an Overt Object Naming Task. Brain Topography. 2019;32(3):418–434. https://doi.org/10.1007/s10548-019-00698-9.

[10.] **Kallioniemi E‡**, Kärkkäinen O‡, Määttä S, Könönen M, Kivimäki P, Kaarre O, Velagapudi V, Kekkonen V, Lehto SM, Laukkanen E, Tolmunen T. Repeated Transcranial Magnetic Stimulation-Induced Motor Evoked Potentials Correlate with the Subject-Specific Serum Metabolic Profile of Creatine. Journal of Clinical Neurophysiology, 2019;36(3):229–235. https://doi.org/10.1097/WNP.0000000000000568.

[11.] Säisänen L, Määttä S, Julkunen P, Niskanen E, **Kallioniemi E**, Gröhn H, Kemppainen S, Lakka TA, Lintu N, Eloranta AM, Vanninen R, Makkonen I, Könönen M. Functional and structural asymmetry in primary motor cortex in Asperger syndrome: a navigated TMS and imaging study. Brain Topography, 2019;32(3):504–518. https://doi.org/10.1007/s10548-019-00704-0.

[12.] Pitkänen M*, **Kallioniemi E**, Järnefelt G, Karhu J, Julkunen P. Efficient Mapping of the Motor Cortex with Navigated Biphasic Paired-Pulse Transcranial Magnetic Stimulation. Brain Topography, 2018;31(6):963–971. https://doi.org/10.1007/s10548-018-0660-9.

[13.] Löfberg O, Julkunen P, **Kallioniemi E**, Pääkkönen A, Karhu J. Modulation of motor cortical excitability with auditory stimulation. Journal of Neurophysiology, 2018;120(3):920–925. https://doi.org/10.1152/jn.00186.2017.

[14.] Julkunen P, Löfberg O, **Kallioniemi E**, Hyppönen J, Kälviäinen R, Mervaala E. Abnormal motor cortical adaptation to external stimulus in Unverricht-Lundborg disease (progressive myoclonus type 1, EPM1). Journal of Neurophysiology. 2018;120(2):617–623. https://doi.org/10.1152/jn.00063.2018.

[15.] Kaarre O, Äikiä M, **Kallioniemi E**, Könönen M, Kekkonen V, Heikkinen N, Kivimäki P, Tolmunen T, Määttä S, Laukkanen E. Association of the N100 TMS-evoked potential with attentional processes: a motor cortex TMS–EEG study. Brain and Cognition, 2018;122:9–16. https://doi.org/10.1016/j.bandc.2018.01.004.

[16.] **Kallioniemi E**, Savolainen P, Järnefelt G, Koskenkorva P, Karhu J, Julkunen P. Transcranial magnetic stimulation modulation of corticospinal excitability by targeting cortical I-waves with biphasic paired-pulses. Brain Stimulation, 2018;11(2):322–326. https://doi.org/10.1016/j.brs.2017.10.014.

[17.] Saari J, **Kallioniemi E**, Tarvainen M, Julkunen P. Oscillatory TMS-EEG-Responses as a Measure of the Cortical Excitability Threshold. IEEE Transactions on Neural Systems and Rehabilitation Engineering, 2018;26(2):383–391. https://doi.org/10.1109/TNSRE.2017.2779135.

[18.] Kaarre O, **Kallioniemi E**, Könönen M, Tolmunen T, Kekkonen V, Kivimäki P, Heikkinen N, Ferreri F, Laukkanen E, Määttä S. Heavy alcohol use in adolescence is associated with altered cortical activity: a combined TMS-EEG study. Addiction Biology, 2018;23:268–280. https://doi.org/10.1111/adb.12486.

[19.] Pitkänen M*, **Kallioniemi E**, Julkunen P, Nazarova M, Nieminen JO, Ilmoniemi RJ. Minimum-Norm Estimation of Motor Representations in Navigated TMS Mappings. Brain Topography, 2017;30(6):711–722. https://doi.org/10.1007/s10548-017-0577-8.

[20.] Pitkänen M*, **Kallioniemi E**, Julkunen P. Effect of inter-train interval on the induction of repetition suppression of motor-evoked potentials using transcranial magnetic stimulation. PLoS One, 2017;12(7):e0181663. https://doi.org/10.1371/journal.pone.0181663.

[21.] Määttä S, Könönen M, **Kallioniemi E**, Lakka T, Lintu N, Lindi V, Ferreri F, Ponzo D, Säisänen L. Development of cortical motor circuits between childhood and adulthood: a navigated TMS-HdEEG study. Human Brain Mapping, 2017;38(5):2599–2615. https://doi.org/10.1002/hbm.23545.

[22.] **Kallioniemi E**, Pitkänen M*, Könönen M, Vanninen R, Julkunen P. Localization of cortical primary motor area of the hand using navigated transcranial magnetic stimulation, BOLD and arterial spin labeling fMRI. Journal of Neuroscience Methods. 2016;273:138–148. https://doi.org/10.1016/j.jneumeth.2016.09.002.

[23.] Julkunen P, Määttä S, Säisänen L, **Kallioniemi E**, Könönen M, Jäkälä P, Vanninen R, Vaalto S. Functional and structural cortical characteristics after restricted focal motor cortical infarction evaluated at chronic stage - Indications from a preliminary study. Clinical Neurophysiology. 2016;127(8):2775–2784. https://doi.org/10.1016/j.clinph.2016.05.013.

[24.] **Kallioniemi E**, Julkunen P. Alternative stimulation intensities for mapping cortical motor area with navigated TMS. Brain Topography, 2016;29(3):395–404. https://doi.org/10.1007/s10548-016-0470-x.

[25.] **Kallioniemi E**, Könönen M, Säisänen L, Gröhn H, Julkunen P. Functional neuronal anisotropy assessed with neuronavigated transcranial magnetic stimulation. Journal of Neuroscience Methods, 2015;256:82–90. https://doi.org/10.1016/j.jneumeth.2015.08.028.

[26.] **Kallioniemi E**, Pääkkönen A, Julkunen P. Repetition suppression in transcranial magnetic stimulation-induced motor-evoked potentials is modulated by cortical inhibition. Neuroscience, 2015;310:504–511. https://doi.org/10.1016/j.neuroscience.2015.09.056.

[27.] Pitkänen M*, **Kallioniemi E**, Julkunen P. Extent and Location of the Excitatory and Inhibitory Cortical Hand Representation Maps: A Navigated Transcranial Magnetic Stimulation Study. Brain Topography, 2015;28(5):657–665. https://doi.org/10.1007/s10548-015-0442-6.

[28.] **Kallioniemi E**, Säisänen L, Pitkänen M*, Könönen M, Karhu J, Julkunen P. Input-output characteristics of late corticospinal silent period induced by transcranial magnetic stimulation. Journal of Clinical Neurophysiology, 2015;32(4):346–351. https://doi.org/10.1097/WNP.0000000000000177.

[29.] **Kallioniemi E**, Pitkänen M*, Säisänen L, Julkunen P. Onset latency of motor evoked potentials in motor cortical mapping with neuronavigated transcranial magnetic stimulation. The Open Neurology Journal, 2015;9:62–69. https://doi.org/10.2174/1874205X01509010062.

[30.] **Kallioniemi E**, Könönen M, Julkunen P. Repeatability of functional anisotropy in navigated transcranial magnetic stimulation – coil-orientation versus response. NeuroReport, 2015;26(9):515–521. https://doi.org/10.1097/WNR.0000000000000380. Cover image.

[31.] **Kallioniemi E**, Säisänen L, Könönen M, Awiszus F, Julkunen P. On the estimation of silent period thresholds in transcranial magnetic stimulation. Clinical Neurophysiology, 2014;125(11):2247–2252. https://doi.org/10.1016/j.clinph.2014.03.012.

[32.] Julkunen P, **Kallioniemi E**, Könönen M, Säisänen L. Feasibility of automated analysis and inter-examiner variability of cortical silent period induced by transcranial magnetic stimulation. Journal of Neuroscience Methods, 2013;217(1-2):75–81. https://doi.org/10.1016/j.jneumeth.2013.04.019.

OTHER PEER-REVIEWED PUBLICATIONS

[1.] **Kallioniemi E**. Cortical excitability measures from TMS-EEG and TMS-EMG - Two sides of the same story? The Journal of Physiology, 2021;599:2779–2780. https://doi.org/10.1113/JP281523.

[2.] **Kallioniemi E**, McClintock SM, Deng Z-D, Husain MM, Lisanby SH. Magnetic Seizure Therapy: Towards Personalized Seizure Therapy for Major Depression. Personalized Medicine in Psychiatry, 2019;17-18:37–42. https://doi.org/10.1016/j.pmip.2019.04.003.

[3.] McClintock SM, **Kallioniemi E**, Martin DM, Kim JU, Weisenbach SL, Abbott CC. A critical review and synthesis of clinical and neurocognitive effects of non-invasive neuromodulation antidepressant therapies. Focus (American Psychiatric Association Publishing), 2019;17(1):18–29. https://doi.org/10.1176/appi.focus.20180031.

BOOK CHAPTERS

[1.] Weiner RD, Husain MM, Young JR, **Kallioniemi E**. Electroconvulsive Therapy and Other Forms of Brain Stimulation. In the American Psychiatric Publishing Textbook of Geriatric Psychiatry. Sixth Edition, Edited by David C. Steffens, Kristina Zdanys. In press.

[2.] **Kallioniemi E**, Määttä S. TMS-EEG. In Kliininen neurofysiologia, First Edition, Edited by Mervaala E, et al. Published 2019 by Duodecim. Pages: 370–372. (Textbook of Clinical Neurophysiology used to educate residents in clinical neurophysiology and neurology)

[3.] **Kallioniemi E**, Könönen M and Määttä S. TMS-EEG, Methods and Challenges in the Analysis of Brain Connectivity. In Biomedical Engineering Challenges, Edited by V. Piemonte, A. Basile, T. Ito and L. Marrelli. Published 2018 by Wiley. Pages: 175–197. https://doi.org/10.1002/9781119296034.ch9.

SUBMITTED

[1.] **Kallioniemi E**, Daskalakis ZJ. Identifying novel biomarkers with TMS-EEG – methodological possibilities and challenges.

[2.] **Kallioniemi E**, Saari J, Ferreri F, Määttä S. TMS-EEG responses across the lifespan: measurement, methods for characterization and identified responses.

[3.] Heikkinen N, **Kallioniemi E**, Niskanen E, Könönen M, Saavalainen T, Tolmunen T, Laukkanen E, Vanninen R. Global brain volume loss associated with excess alcohol use during the pruning process of adolescence – A comparative methodological study.

[4.] Daskalakis ZJ, McClintock SM, Hadas I, **Kallioniemi E**, Zomorrodi R, Throop A, Palmer L, Farzan F, Thorpe KE, Tamminga C, Blumberger DM. Confirmatory Efficacy and Safety Trial of Magnetic Seizure Therapy for Depression (CREST – MST): A Protocol for Identification of Novel Biomarkers via Neurophysiology.

[5.] Leinola H, Honkalampi K, Hänninen T, Lehto SM, **Kallioniemi E**, Mervaala E, Purhonen M, Ruusunen A, Vanninen R, Viinamäki H, Valkonen-Korhonen M. A randomized, double-blind and sham-controlled bifrontal rTMS study in treatment-resistant depression: Improvement in cognitive functioning both in active and sham treatment groups.

[6.] Julkunen P, Löfberg O, Kariminezha S, Säisänen L, Pitkänen M, **Kallioniemi E**, Karhu J. Repetition suppression may detect and distinguish dynamic and stable states of motor excitability.

[7.] Nguyen DTA, Rissanen SM, Julkunen P, **Kallioniemi E**, Karjalainen PA. Coil Orientation in Transcranial Magnetic Stimulation affects the motor-evoked potential's size with little variation in its waveform.

[8.] Kaarre O, **Kallioniemi E**, Könönen M, Tolmunen T, Kekkonen V, Kivimäki P, Heikkinen N, Ferreri F, Laukkanen E, Määttä S. Sex differences in the alcohol-related alterations in cortical activity – a combined TMS-EEG study.

[9.] Faerman A, Bishop JH, Stimpson KH, Phillips A, Gülser M, Amin H, Nejad R, DeSouza D, Geoly AD, **Kallioniemi E**, Jo B, Williams NR, Spiegel D. Modulation of a Stable Neurobehavioral Trait Using Repetitive Transcranial Magnetic Stimulation: A Preregistered Randomized Control Trial.

IN PREPARATION

[1.] **Kallioniemi E**, Määttä S, Laukkanen V, Valkonen-Korhonen M. Impact of active and sham bifrontal rTMS on cholinergic system in treatment-resistant depression and connection to treatment response: A preliminary study.

[2.] **Kallioniemi E**, Määttä S, Könönen M, Julkunen P, Mervaala E, Kaarre O, Laukkanen E, Tiihonen J, Tuppurainen H. Abnormal response to a high frequency TMS partly restores to a healthy level after rTMS treatment in individuals with Schizophrenia.

[3.] Hernandes-Pavon J, Veniero D, Lioumis P, Mutanen T, Metsomaa J, Belardinelli P, Bergmann TO, Casarotto S, Casula E, Daskalakis ZJ, Farzan F, Fecchio M, Julkunen P, **Kallioniemi E**, Miniussi C, Rocchi L, Rogasch NC, Siebner H, Tomasevic L, Thut G, Zrenner C, Ziemann U, Ilmoniemi RJ. Transcranial magnetic stimulation combined with electroencephalography: an overview and guidelines for measurement and data analysis.

[4.] **Kallioniemi E**, Hudgens-Haney M, Zomorrodi R, Blumberger D, Daskalakis ZJ, Tamminga C. Neurophysiological signature of magnetic seizure therapy (MST) in depression and Schizophrenia

AWARDS AND HONORS

2022	WiscProf: Future Faculty in Engineering Workshop, The University of Wisconsin-Madison
2021	Cornell Rising Star, Program for Achieving Career Excellence at Cornell University
2021	NextProf Nexus, the University of Michigan, Ann Arbor, the University of California, Berkeley and the Georgia Institute of Technology
2021	New England Future Faculty Workshop, Northeastern University, Harvard University Medical School, and the University of Massachusetts Amherst
2021	Building Future Faculty Program, North Carolina State University
2020	Inaugural Rising Star in Engineering in Health, a global competition organized by Columbia University, Department of Biomedical Engineering (20 selected of over 160 applicants)
2020	Travel Award, American College of Neuropsychopharmacology
2020	Article selected to Editor's Choice Collection for 2020, Human Brain Mapping
2020	Travel Award, North American Neuromodulation Society

2018 Travel Award, International Federation of Clinical Neurophysiology
2017 Travel Award, European Chapter, International Federation of Clinical Neurophysiology
2016 Graduation with Distinction (top 5% of all Ph.D. theses)
2016 Travel Award, International Society for Magnetic Resonance in Medicine
2015 Travel Award, European Chapter, International Federation of Clinical Neurophysiology
2015 Young Investigator Award, Finnish Neuroradiology Society
2013 – 2018 Travel Award, The Finnish Society of Clinical Neurophysiology (five times)
2013 Best Poster Award, Second Runner-Up, 5th International Symposium on Navigated Brain Stimulation in Neurosurgery
2013 Best Poster Award, International Doctoral Program in Biomedical Engineering and Medical Physics

FELLOWSHIPS (Role: Principal Investigator, salary only)

2021 Postdoctoral Fellowship, Oskar Huttunen Foundation, Finland (50,000€)
2020 Postdoctoral Fellowship, Instrumentarium Science Foundation, Finland (60,000€)
2019 Postdoctoral Fellowship, Orion Research Foundation sr, Finland (37,500€)
2018 Postdoctoral Fellowship, Finnish Cultural Foundation, Finland (49,000€)
2016 Postdoctoral Fellowship, Päivikki and Sakari Sohlberg Foundation, Finland (25,000€)
2015 Predoctoral Fellowship, Finnish Foundation for Technology Promotion, Finland (5,000€)
2014 – 2016 Predoctoral Fellowship, University of Eastern Finland, Finland (23,922€)
2014 – 2015 Predoctoral Fellowship, Radiological Society of Finland, Finland (7,850€)
2013 – 2015 Predoctoral Fellowship, The Finnish Brain Research and Rehabilitation Center Neuron, Finland (10,000€)
2014 Predoctoral Fellowship, The Finnish Concordia Fund, Finland (4,000€)
2013 – 2014 Predoctoral Fellowship, Paulo Foundation, Finland (17,000€)
2013 Predoctoral Fellowship, Kaute Foundation, Finland (5,700€)

GRANTS

Awarded

2021 **Title**: Adolescents and Alcohol Project – Follow-up Study
Sponsor: Research Committee of the Kuopio University Hospital Catchment Area for the State Research Funding
Amount: 45,000€
Role: Co-Investigator (Principal Investigator: Virve Kekkonen)

2020 **Title**: Adolescents and Alcohol Project – Follow-up Study
Sponsor: The Finnish Foundation for Alcohol Studies
Amount: 24,000€
Role: Co-Investigator (Principal Investigator: Virve Kekkonen)

Pending

2022 **Title:** Repetitive transcranial magnetic stimulation in psychosis: EEG-guided approach to treat cognitive dysfunction
Sponsor: National Institute of Mental Health (NIMH) K99/R00 Pathway to Independence Award
Project period: 04/01/2022-03/31/2027
Amount: $1,005,669
Role: Principal Investigator
Status: Reviewed October 20, 2021, received an impact score 30 (K99/R00 does not get a percentile) will go into Advisory Council January 2022. Can be transformed into an K01, R21 or R01

2022 **Title**: Theta-burst repetitive transcranial magnetic stimulation for depression
Sponsor: Croatian Science Foundation
Project duration: 60 months
Amount: 1,841,415.84 HRK
Role: Collaborator (Principal Investigator: Maja Rogić Vidaković)

INVITED TALKS

[1.] **Kallioniemi E**. Transcranial magnetic stimulation: From basic mechanisms to advanced applications. Underrepresented Needs in Technology and Engineering (UNITE) webinar, Biomedical Engineering Society, September 13, 2021.

[2.] **Kallioniemi E**. Using electromagnetic brain stimulation to tackle unmet clinical needs in psychiatry. Rising Stars in Engineering in Health workshop, Columbia University, virtual meeting due to COVID-19, December 18, 2020.

[3.] **Kallioniemi E**. Magnetic seizure therapy – Alternative to Electroconvulsive therapy? Science Talks, Department of Clinical Neurophysiology, Kuopio University Hospital, Kuopio, Finland, December 4, 2018.

[4.] **Kallioniemi E**. rTMS in Schizophrenia – results from Skiter study. Forensic Psychiatry Clinic of the University of Eastern Finland, Kuopio, Finland, December 20, 2017.

[5.] **Kallioniemi E**. Motor physiology – Studies including transcranial magnetic stimulation and MRI, Department of Psychiatry and Behavioral Sciences, Stanford Medicine, CA, March 29, 2017.

PROFESSIONAL ORAL PRESENTATIONS

Symposia

[1.] **Chair and Speaker** (Co-chair: Jaakko Nieminen). Symposium title: Advances in Transcranial Magnetic Stimulation session. Talk title: Motor evoked potentials induced by biphasic paired-pulses. European Medical and Biological Engineering and Nordic-Baltic Biomedical Engineering, Tampere, Finland, 2017.

[2.] **Chair and Speaker** (Co-chair: Gang Zheng). Symposium title: Multimodal Imaging session. Talk title: Localizing cortical motor representation: A comparative study between navigated

transcranial magnetic stimulation, BOLD contrast and arterial spin labeling fMRI. World Congress on Medical Physics and Biomedical Engineering, Toronto, Canada, 2015.

Platform presentations

[1.] **Kallioniemi E**, Awiszus F, Pitkänen M, Julkunen P. Variability in cortical excitability – a TMS-EMG study with stimulus-response curves. 2nd International Workshop on Non-Invasive Brain Stimulation (NIBS), Minneapolis, MN, virtual meeting due to COVID-19, 2021.

[2.] **Kallioniemi E**, Säisänen L, Gröhn H, Ferreri F, Lakka T, Lintu N, Lindi V, Könönen M, Määttä S. Developmental differences in motor cortex TMS-EEG responses associate with local white matter microstructure. 31st International Congress of Clinical Neurophysiology of the IFCN, Washington DC, 2018.

[3.] **Kallioniemi E**, Awiszus F, Pitkänen M, Julkunen P. Influence of intertrial interval on measures of motor cortical excitability, Can the resting motor threshold be calculated with a short intertrial interval? 8th International Symposium on Navigated Brain Stimulation in Neurosurgery and Neuromodulation, Berlin, Germany, 2016.

[4.] **Kallioniemi E**, Könönen M, Vanninen R, Säisänen L, Vaalto S, Julkunen P. Functional and structural anisotropy of the motor cortex in chronic stroke: A TMS-DTI study. Brain Stimulation and Imaging meeting, Geneve, Switzerland, 2016.

[5.] **Kallioniemi E**, Säisänen L, Könönen M, Julkunen P. A novel approach to evaluate corticospinal inhibition using silent period. 5th International Symposium on Navigated Brain Stimulation in Neurosurgery, Berlin, Germany, 2013.

SELECTED PROFESSIONAL POSTER PRESENTATIONS

[1.] **Kallioniemi E**, Määttä S, Laukkanen V, Valkonen-Korhonen M. Impact of Active and Sham Bifrontal rTMS on Cholinergic System in Treatment-Resistant Depression and Connection to Treatment Response: A Preliminary Study. 60th Annual Meeting of the American College of Neuropsychopharmacology, Puerto Rico, 2021 (accepted).

[2.] **Kallioniemi E**, Määttä S, Säisänen L, Hyppönen J, Koskenkorva P, Saari J. Characterizing the TMS-evoked EEG responses of the leg, hand, and face areas in the primary motor cortex. Society for Neuroscience Annual Meeting, virtual meeting due to COVID-19, 2021.

[3.] **Kallioniemi E**, Hudgens-Haney M, Zomorrodi R, Blumberger D, Daskalakis ZJ, Tamminga C. Neurophysiological signature of magnetic seizure therapy (MST) in depression and Schizophrenia: A preliminary resting-state electroencephalography study. 59th Annual Meeting of the American College of Neuropsychopharmacology, virtual meeting due to COVID-19, 2020.

[4.] **Kallioniemi E**, Pruitt T, Wang X, Husain MM, Liu H. Effects of Transcranial Infrared Stimulation on Neural Information Flow in Healthy Volunteers. 57th Annual Meeting of the American College of Neuropsychopharmacology, Hollywood, FL, 2018.

[5.] **Kallioniemi E**, Määttä S, Könönen M, Mervaala E, Viinamäki H, Valkonen-Korhonen M. Effects of repetitive transcranial magnetic stimulation on short-latency afferent inhibition: A study in treatment-resistant depression. 31st International Congress of Clinical Neurophysiology of the IFCN, Washington DC, 2018.

[6.] **Kallioniemi E**, Määttä S, Könönen M, Julkunen P, Mervaala E, Kaarre O, Laukkanen E, Tiihonen J, Tuppurainen H. Abnormal response to a high frequency TMS partly restores to a healthy level after rTMS treatment in Schizophrenic patients. 2nd International Brain Stimulation Conference, Barcelona, Spain, 2017.

[7.] **Kallioniemi E**, Määttä S, Könönen M, Julkunen P, Säisänen L, Mervaala E, Kaarre O, Laukkanen E, Tiihonen J, Tuppurainen H. Repetition suppression in transcranial magnetic stimulation induced motor evoked potentials is impaired in schizophrenic patients. 2nd International Brain Stimulation Conference, Barcelona, Spain, 2017.

[8.] **Kallioniemi E**, Kärkkäinen O, Määttä S, Könönen M, Kivimäki P, Kaarre O, Kekkonen V, Laukkanen E, Tolmunen T. Serum metabolic profile of creatine correlates with repeated motor evoked potentials: A study on TMS-induced repetition suppression. The 16th European Congress of Clinical Neurophysiology, Budapest, Hungary, 2017.

[9.] **Kallioniemi E**, Könönen M, Mervaala E, Viinamäki H, Valkonen-Korhonen M. Effects of repetitive transcranial magnetic stimulation on short-latency afferent inhibition: a study in treatment-resistant depression. Nordic Congress of Clinical Neurophysiology & Kuopio Epilepsy Symposium, Kuopio, Finland, 2017.

[10.] **Kallioniemi E**, Palmgren JE, Fraunberg M, Könönen M, Vanninen R, Julkunen P. Application of navigated TMS and DTI in pre-radiotherapy planning and the effect of radiation on motor function: A pilot study with two patients. 8th International Symposium on Navigated Brain Stimulation in Neurosurgery and Neuromodulation, Berlin, Germany, 2016.

[11.] **Kallioniemi E**, Könönen M, Hakumäki J, Mervaala E, Viinamäki H, Vanninen R, Valkonen-Korhonen M. Increase of grey matter following bifrontal rTMS in drug resistant major depressive disorder patients: A VBM study. 24th International Society for Magnetic Resonance in Medicine Annual Meeting, Singapore, 2016.

[12.] **Kallioniemi E**, Julkunen P. Repetition suppression in resting motor evoked potentials evidenced by an increase in intracortical inhibition. The 15th European Congress on Clinical Neurophysiology, Brno, Czech Republic, 2015.

[13.] **Kallioniemi E**, Könönen M, Säisänen L, Julkunen P, Vanninen R, Jäkälä P, Määttä S, Vaalto S. Influence of M1 hand knob ischemic stroke on motor activation: An fMRI study in chronic stage. The 15th European Congress on Clinical Neurophysiology, Brno, Czech Republic, 2015.

[14.] **Kallioniemi E**, Säisänen L, Julkunen P, Könönen M, Vanninen R, Jäkälä P, Määttä S, Vaalto S. Focal lesion on the hand knob re-localizes motor function laterally compared to the unaffected hemisphere. The 15th European Congress on Clinical Neurophysiology, Brno, Czech Republic, 2015.

[15.] **Kallioniemi E**, Könönen M, Säisänen L, Gröhn H, Julkunen P. Interaction of neuronal anisotropy and motor cortex excitability: a navigated TMS-DTI study. 30th International Congress on Clinical Neurophysiology of the IFCN, Berlin, Germany, 2014.

[16.] **Kallioniemi E**, Könönen M, Säisänen L, Gröhn H, Julkunen P. Cortical excitability and neuronal anisotropy are related: TMS-DTI study. Organization for Human Brain Mapping Annual Meeting, Hamburg, Germany, 2014.

[17.] **Kallioniemi E**, Säisänen L, Könönen M, Julkunen P. Individual silent period thresholds improve the sensitivity of cortical inhibition measurement. Asian and Oceanian Congress of Clinical Neurophysiology, Bali, Indonesia, 2013.

[18.] **Kallioniemi E**, Könönen M, Julkunen P. Degree of neuronal organization in motor cortex evaluated by navigated TMS. Organization for Human Brain Mapping Annual Meeting, Seattle, WA, 2013.

[19.] **Kallioniemi E**, Säisänen L, Könönen M, Karhu J, Julkunen P. Appearance of late cortical silent period is dependent on stimulation intensity. 5th International Conference on Non-invasive Brain Stimulation, Leipzig, Germany, 2013.

TEACHING EXPERIENCE

UNIVERSITY OF EASTERN FINLAND, KUOPIO, FINLAND
Instructor on Record:
Lecturer, Master's level Functional MRI for Linguistics, Spring 2015, Spring 2016, Spring 2017
Lecturer, Master's level Clinical neurophysiology, Spring 2014, Spring 2015, Spring 2016

Guest Lecturing:
Lecturer, Master's level Functional MRI for Physicists, Fall 2015

BOM JESUS CORAÇÃO DE JESUS, FLORIANÓPOLIS, BRAZIL
Instructor on Record:
Teaching assistant, High School level English, Summer 2007

COACHING TEAM EXIMIA LTD, HELSINKI, FINLAND
Instructor on Record
Teaching assistant in Mathematics and Physics courses preparing for University Entrance Exams, Spring 2005, Summer 2005, Spring 2006, Summer 2006

AALTO UNIVERSITY (HELSINKI UNIVERSITY OF TECHNOLOGY UNTILL 2011), ESPOO FINLAND
Instructor on Record
Teaching assistant in Information and Communication Technology Project (teaching elementary students in informatics and technology), Fall 2004–Spring 2005

FORMAL TRAINING IN TEACHING

2020 Learning to Teach Online, interactive online course, Coursera, organized by UNSW Sydney, approximately 18 hours of work

2020 Teaching Science at University, interactive online course, Coursera, organized by University of Zurich, approximately 13 hours of work

2020 University Teaching, interactive online course, Coursera, organized by the University of Hong Kong, approximately 18 hours of work

2020 Knowledge of the Fundamentals of Team-Based Learning certificate, 5 interactive face-to-face workshops, organized by the Team-Based Learning Collaborative, approximately 18 hours of work

2018 Teaching Workshop for Stanford Post Doctoral Scholars, interactive face-to-face workshop, Stanford, CA, 2-day

2017 An Introduction to Evidence-Based Undergraduate STEM Teaching, CIRTL Network MOOC, interactive online course, 8-weeks

MENTORING

UT SOUTHWESTERN MEDICAL CENTER, DALLAS, TX
Informal Research Mentoring (Primary Mentor: Mustafa Husain, M.D.)

2018–2019 Benjamin Pace, M.Sc. Current position: Lab Manager at University of Iowa

2018–2019 Nicholas George-Jones, Medical Student. Current position: Medical Student at UT Southwestern Medical Center

AALTO UNIVERSITY, ESPOO, FINLAND
Officially appointed Doctoral Advisor

2014 – 2018 Minna Pitkänen D.Sc.(Tech.). Thesis: Characterization of motor cortical function with navigated transcranial magnetic stimulation. Current position: Postdoctoral Researcher at University of Eastern Finland and Engineer at Bittium Biosignals Oy

Officially appointed Master's Research Advisor

2014 Karita Salo M.Sc.(Tech.). Thesis: Combining Transcranial Magnetic Stimulation and Electroencephalography to Estimate Cortical Excitability. Current position: Data Scientist at Helsinki Biobank

2013 Minna Pitkänen M.Sc.(Tech.). Thesis: Mapping of cortical hand representations using navigated transcranial magnetic stimulation and functional imaging. Current position: Postdoctoral Researcher at University of Eastern Finland and Engineer at Bittium Biosignals Oy

Officially appointed Bachelor's Research Advisor

2014 Olli Rantula B.Sc.(Tech.). Thesis: Navigated magnetic stimulation combined with magnetoencephalography in clinical applications. Current position: Ph.D. Candidate at Aalto University

2014 Rasmus Zetter B.Sc.(Tech.). Thesis: Navigated transcranial magnetic stimulation and magnetoencephalography - Technology, applications and combined use. Current position: Technology Development Engineer at MEGIN

Officially appointed Special Assignment Advisor

2013 Minna Pitkänen, B.Sc.(Tech). Thesis: A novel approach for motor threshold determination using transcranial magnetic stimulation. Current position: Postdoctoral Researcher at University of Eastern Finland and Engineer at Bittium Biosignals Oy

2013 Minna Pitkänen, B.Sc.(Tech). Thesis: Characterizing late silent period induced by transcranial magnetic stimulation. Current position: Postdoctoral Researcher at University of Eastern Finland and Engineer at Bittium Biosignals Oy

UNIVERSITY OF EASTERN FINLAND, KUOPIO, FINLAND
Officially appointed Master's Research Advisor

2016 – 2017 Teemu Trygg, M.D. Thesis: Arterial spin labeling – the effects of excessive alcohol use during adolescence to cerebral perfusion. Current position: Resident at Päijät-Häme Central Hospital and Ph.D. Candidate at University of Helsinki

2014 – 2015 Aleksi Montonen, M.D. Thesis: The use of transcranial magnetic stimulation in rehabilitation of stroke patients with motor deficits. Current position: Practicing Physician in Finland

Informal Research mentoring (Primary Mentor: Petro Julkunen, Ph.D.)

2018 – now Dao Nguyen, Ph.D. candidate

2017 – now Jusa Reijonen, Ph.D. candidate

CLINICAL AND INDUSTRY EXPERIENCE

2012 – 2017 Medical Physicist Trainee, Diagnostic Imaging Center, Kuopio University Hospital, Kuopio, Finland. Clinical training in radiotherapy, nuclear medicine, clinical physiology, diagnostic radiology, clinical neurophysiology

2011 R&D Trainee, Nexstim Plc. (a manufacturer of brain stimulation devices), Helsinki, Finland

2010 Trainee Biomedical Engineer, The Alfred Hospital, Melbourne, Australia

2010 Assistant Engineer, Syndome Electronics Industry Co., Ltd., Bangkok, Thailand

EDITORIAL ROLES

2021 – now Special Issue Guest Editor (Personalized Brain Stimulation: Advances and Challenges), Applied Sciences

2020 – now Topical Advisory Panel (Brain stimulation), Applied Sciences

AD HOC MANUSCRIPT REVIEWING

Verified reviews: https://publons.com/researcher/1527503/elisa-kallioniemi/

Applied Sciences
Behavioral Sciences
Biosensors
Brain and Behavior
Brain Sciences
Brain Topography
Cancer
Clinical Neurophysiology
Coatings
Communications Biology
Electronics
eNeuro
Frontiers in Neuroscience
Human Brain Mapping
International Journal of Environmental Research and Public Health
Journal of Clinical Neurophysiology
Journal of Neural Engineering
Journal of Neuroscience Methods
Methods and Protocols
Micromachines
Nanomaterials
Neural Regeneration Research
Neurosciences
Neurosurgical Review
Physiological Measurement
Psychological Medicine
Progress in Neuro-Psychopharmacology and Biological Psychiatry
Robotics
Sensors
Scientific Reports
The Journal of Physiology

LEADERSHIP

2018 – now	Member of Science Policy, Education, and Communication Club, UT Southwestern Medical Center
2018 – now	Member of Future Leaders in Pedagogy Club, UT Southwestern Medical Center
2003	Member of Team Finland, 16th International Young Physicists' Tournament
2002	Member of Team Finland, European Youth Parliament
2000 – 2001	Member of Team British Energy/Southlands School, Engineering Education Scheme in England

DIVERSITY, EQUITY, AND INCLUSION EFFORTS

2021 – now	Mentor in the Disabled in STEM program
2021 – now	Mentor in the Peer Review for Inclusion, Diversity, and Equity (PRIDE) program
2021 – now	Mentor in the Action Potential Advising Program of Simply Neuroscience
2021	Interview with the Humans of Neuroscience, “My path in Neuroscience”
2021 & 2019	Abstract reviewer for the Annual Biomedical Research Conference for Minority Students, California
2017	Stanford Science PenPals Program
2007	Taught English to disadvantaged adolescents, Bom Jesus Coração de Jesus, Florianópolis, Brazil
2004 – 2012	Mentor for incoming exchange students, European Union Erasmus Programme, Aalto University, Espoo, Finland

PROFESSIONAL MEMBERSHIP

2021 – now	Biomedical Engineering Society
2021 – now	Society of Neuroscience
2019 – now	International Neuromodulation Society
2019 – now	North American Neuromodulation Society
2017 – now	Organization of Human Brain Mapping
2014 – now	Finnish Association of Medical Physicists