

Curriculum vitae

Personal data

Name: Loránd George Eröss MD., Ph.D., FIPP
Date and place of birth, nationality: Budapest, 13.08.1965, Hungarian
Degree (date and place of graduation, institute): 1983, Secondary school maturity exam
1990, Budapest, SOTE, MD., cum laude diplom
1995, Budapest, OITI, Neurology board exam
2001, Budapest, OITI, Neursurgery board exam
2007, World Institute of Pain, Fellow of Interventional Pain
Practitional exam
2010, PhD Semmelweis University, Faculty of Medicine
2019, Habilitation at Semmelweis University, Faculty in Medicine
2019, Harvard Scholar in Surical Leadership

Scientific activities

Dr. Lorand Eross is the director of the National Institute of Mental Health Neurology and Neurosurgery. He was the director of Research and Innovation between 2019-2021 at the National Institute of Clinical Neurosciences, Budapest, Hungary. He runs the Neuromodulation Program, he is the director of Epilepsy Surgery Program and the founder of the Functional Neurosurgical Department and Center of Neuromodulation at the National Institute of Neuroscience. He has got his PhD degree at Semmelweis University in 2010 in epilepsy surgery. His main interest is epilepsy surgery, movement disorder surgery, neurosurgical treatment of pain, spasticity and neuromodulation, and BCI technology. He has an active reasearch group in the field of epilepsy, chronic pain. He developed new intraoperative localisation method for invasive recordings in epilepsy surgery. His activity includes research and development of in vitro and in vivo electrophysiological and optical investigation methods, and innovative imaging techniques for DBS and epilepsy surgery. He is a habilitated doctor since 2019 at the Semmelweis University.

Research experimnts and positions

2024 - Visiting professor Columbia University, New York
2021-04-01 Director National Institute Mental Health, Neurology and Neurosurgery
2021-03-01 Director National Institute of Clinical Neurosciences
2019- Director of Research and Innovation at the National Institute of Clinical Neurosciences
2014- Director of the Center of Neuromodulation and Epilepsy Surgrey Program National Institute of Clinical neurosciences
2012- Associate professor at Semmelweis Medical University
2011- Associate professor at Pázmány Péter Catholic University Faculty of Information Technology
2011-2015 Functional Neurosurgical Program founder and director at Szegeed Medical University
2010- Head of Functional Neurosurgery Department, National Institute of Clinical Neuroscience, Budapest
2004-2010 Functional Neurosurgical Program Director, National Institute of Clinical Neuroscience, Budapest
2006-2009 Lecturer, Pázmány Péter Chatolic University, Institute of Information Technology, Budapest
2006- Lecturer, Semmelweis University, Radiology Institute, Budapest
1991-2004 Medical doctor, MÁV Hospital, Neurosurgery Department, Budapest

Trainings

1995 Visiting fellow in Zurich University (Prof.Wieser)
1997 Skull Base Course in Maastricht (Prof. Rhoton, Prof. Fukushima)
1998 Visiting fellow at Prof. Claudio Munari Epilepsy Center in Milan (Prof.Munari, Dr.LoRusso)
2000 Visiting fellow in Bethel, Bielefeld, Epilepsy Surgery Center (Dr.Pannek, Prof.
2001 ESPNS Course Amsterdam
2004 ECMT Course on Neurosurgical Treatment of Pain Brussels
2005 Visiting fellow in Innsbruck Medical University on DBS in Parkinson (Prof.Eisner)
2005 Medtronic Neuroscience and Neurotechnology Forum Montreux, Switzerland
2008 Visiting fellow in Kiel Neuroscience Center for DBS for Parkinson disease (Prof.Deuschl)
2008 Leksell Stereotactic Course fellow Amsterdam (Prof.Schuurman)
2009 DBS fellow for Parkinson Disease and Dystonias in Göttingen

Awards:

2014 Prima Prize, Prima Primiissima Foundation, Hungary
2018 Szabó György prize of medicine, Hemingway Foundation
2020 Knight of Cross from the Order of Merit of the Hungarian Republic

Grants

2024 - NKFIH 2020-2.1.1-ED-2023-00288 Genetically modulated human organotypic cell line development for epilepsy research – (PI)
2020 - CEREGATE grant for Spinal Sensory Neural Interface (PI)
2019- CEREGATE grant for BCI research, PI (European private funded international research grant)
2018- National Brain Research Program 2., senior researcher, member of the board of directors
2017- National Bionical Program, PI, member of the board of directors
2016- NVKP – 16 2 foton microscope development research grant of NRDIO – senior researcher
2016- KFI – 16-1-2016-0177 grant of NRDIO, senior researcher
2014-2017 National Brain Research Program 1., PI, member of the board of directors
2011-2014 EU FP7 MULTISCALEFUNIM project, coordinator, chief researcher
2006-2009 EU FP6 Neuroprobes Integrated Project, associate researcher
2007-2011 EU FP7 Eicure Integrated Project, associate researcher
2005-2009 OTKA tender, K49122, associate researcher
2006-2008 ETT grant, 135/2006, associate researcher

Patent:

Titel:., Motor cortex sensing modul (MCSM), for adaptive bilateral STN stimulation" No:U2000033
(under process 2019)

Grant review activity:

National Scientific and Research Fund, Hungarian Academy of Science
National Research, Development and Innovation Office (NRDIO)

Reviewer activity:

Clinical Neuroscience (Hun), Epilepsy Research, Movement Disorders, Brain Research Buletin, Innovative Neurosurgery, Neuromodulation

Editor:

Clinical Neuroscience (Hun)

Teaching activity:

Semmelweis University, Faculty of Medicine, in neurosurgery, neurology, neuroradiology, gradual and postgradual level and in the PhD program. Pázmány Péter Catholic University, Faculty of Information Technology, bionical sciences, gradula and postgradual level and in the PhD program. Szeged University Faculty of Medicine, in the PhD program

Faculty in International Postgraduate training Courses:

ESSFN Epilepsy surgery courses 2023, 2024
World Institute of Pain cadaver courses since 2005
Hungarian Neurosurgical Society training courses for residents since 2009
Intrathecal Baclofen Pump Courses since 2005 (director)
Functional Neurosurgery Courses in neuromodulation since 2007 (director)

Organized conferences

since 2005 every year World Institute of Pain Conference in Budapest, Hungary
2016 National Congress of the Hungarian Neurosurgical Society, Budapest
2017 European Congress of Clinical Neurophysiological, Budapest
2019 European Congress of NeuroRehabilitation Budapest
2019 Hungarian Pain Society conference 2019 Szeged
2020, 20-23 May, 10th World Congress of the World Institute of Pain, Rome
2020, 23-26 September, XXVI Congress of the European Society of Stereotactic and Functional Neurosurgery Marseilles
2023 ESSFN Congress Stockholm

Membership in major scientific associations

2023-ESSFN vice president
2020-2022 president, Hungarian Neurosurgical Society
2020- panel member, Functional section, EANS
2018-2023 second secretary of the European Society for Stereotactic and Functional Neurosurgery
2018-EAN Pain section member
2017- member of the European Academy of Science and Art

2015- Hungarian Academy of Science, Section of Medical Sciences, member of the Clinical Neuroscience Comitee
Hungarian Pain Society president elect (2021)
Hungarian Neursurgical Society member of the officers of directors (2018-2020)
Hungarian Society of Neurology and Psychiatry (1991-)
Hungarian Leage Against Epilepsy (1995-)
Hungarian Parkinson Society member of the officers of directors (2010-)
World Institute of Pain member of the advisory board (2007-)
International Neuromodulation Society (2004 -)

Scientometrics data

Peer reviewed articles: 85
Book chapters:14
Cummulative impact factor: 262,502
Citations numbers: 2824, dependent:462,independent:2362 (Scopus)
Hirsch index: 24
G index: 51

Social activities:

1989- Founding member of the Hungarian Maltese Charity Service
2000-2004 President of the Mocsary Lajos Foundation for supporting the social and mentalhygenic projects in the hungarian minorities outside of Hungary
2012 - Nyilas Misi Foundation supporting the education of excellent poor students in Transilvania(Romania) founded by the Brain Prize winner Peter Somogyi
2013 - Member of of the Sovereign Order of Malta
2015 - Hospitaller of the Hungarian Association of the Sovereign Order of Malta
2018 - Hungarian Maltase Charity Service School Foundation: board member
2022 - Hungarian Maltase Charity Service Fundation: board member
2023 Ministry of Culture and Innovation, John Neumann Program, Innovations in Healthcare advisory board member
2023 Ministry of Culture and Innovation, Dementia National Act advisory board member
2024 Academic Advisory Board member, Saint Ignatius, Jesuit College

Major scientific publications

Bálint Várkuti, László Halász, Saman Hagh Goole, Scott F Lempka, Andreas Lozano, Loránd Eröss
Conversation of a medical implant into a versatile computer-brain interface
BRAIN STIMULATION Vol.17. Issue 1. p39-48 January 2024

Eross L, Riley J, Levy El, Vakharia K, Neuroimaging of Deep Brain Stimulatiom Neurol Clion. **2020** Feb:38(1):201-2014

L. Halász, D. Kis, L.Entz, G Tamás, D Fabó, **L. Eröss**

Functional connectivity distribution within the subthalamic nucleus as an exxential tool in deep brain stimulation for Parkinson'disease NEUROMODULATION: TECHN NEURAL INTERF 22 P. e367 (**2019**)

G.Tamas,. A Kelemen B Javor-Duray, M Palotai, L Halasz, **L.Eross**, G Fekete L Bognar G Deuschl, M Muthuraman
Low and high beta band activity in oprimary sensorimoitor cortex is diminished by ipsilateral subthalamic stimulatuiou in Parkisonian patients MOVEMENT DISORDERS 34: S2 P S880 (**2019**)

Halgren M, Ulbert I, Bastuji H, Fabó D, **Eröss L**, Rey M, Devionsky O, Doyle WK, Mak-McCully R, Halgren E, Wittner L, Chauvel P, Heit G, Eskandar E, Mandell A, Cash SS Proc Natl Acad Sci USA 2019 Nov 19:116(47):23772-232782

Rosen BQ, Krishnan GP, Sanda P, Komarov M, Sejnowski T, Rulkov N, Ulbert I, **Eross L**, Madsen J, Devinsky O, Doyle W, Fabo D, Cash S, Bazhenov M, Halgren E Stimulating Human Sleep Spindle MEG and EEG from Ion Channel and Circuit Level Dynamics **J Neurosci Methods** **2019** Mar 15:316:46-57. doi: 10.1016/j.neumeth. 2018.10.002. Epub 2018 Oct 6.

Halgren DJ Jr, Ulbert I, Wittner L, **Eröss L**, Madsen JR, Devinsky O, Doyle W, Fabo D, Cash SS, Halgren E Heterogeneous Origin of Human Sleep Spindles in Different Cortical Layers **J Neurosci.** **2018** Mar 21:38(12):3013-3025. doi:10.1523/JNEUROSCI.2241-17.2018. Epub 2018 Febr 15.

- Nagy G, Stokes SS, **Erőss LG**, Bhattacharyya D, Yianni J, Rowe JG, Kemeny AA, Radatz MWR Contemporary radiosurgery of cerebral cavernous malformations: Part 2. Treatment outcome for hemispheric lesions **J Neurosurg.** **2018** Jul 1:1-9. doi:10.3171/2018.2.JNS171267.
- András Horváth, Anna Szűcs, Gábor Barcs, Dániel Fabó, Anna Kelemen, Péter Halász, **Loránd Erőss**, Anita Kamondi^[L]^[SEP] Interictal epileptiform activity in the foramen ovale electrodes of a non-epileptic frontotemporal dementia patient^[L]^[SEP] **JOURNAL OF ALZHEIMER'S DISEASE REPORTS** 1:(1) pp. 89-96. **(2017)**^[L]^[SEP]
- Erőss L**, Entz L, Fabó D Invasive neuromodulation in the treatment of drug resistant epilepsies Orv Hetilap **2015** Dec 27: 156(52):2013-9
- Tóth E, Fabó D, Entz L, Ulbert I, **Erőss L** Intracranial neuronal ensemble recordings and analysis in epilepsy **J Neurosci Methods.** **2016** Feb 15: 260:2361-9
- Cash SS, Halgren E, Dehghani N, Rossetti AO, Thesen T, Wang C, Devinsky O, Kuzniecky R, Doyle W, Madsen J, Bromfield E, **Eross L**, Halasz P, Karmos G, Csercsa R, Wittner L, Ulbert I. **(2009)** The human K-complex represents an isolated cortical down-state. **Science**, 324(5930): p. 1084-7.
- Eross L.**, Bago A.G., Entz L., Fabo D., Halasz P., Balogh A., and Fedorcsak I. **(2009)** Neuronavigation and fluoroscopy-assisted subdural strip electrode positioning: a simple method to increase intraoperative accuracy of strip localization in epilepsy surgery. **J Neurosurg**, 110(2): p. 327-31.
- Eross L.**, Entz L., Fabo D., Jakus R., Szucs A., Rasonyi G., Kelemen A., Barcs G., Juhos V., Balogh A., Barsi P., Clemens Z., and Halasz P. **(2009)** Interhemispheric propagation of seizures in mesial temporal lobe epilepsy (MTLE): A study with combined scalp and foramen ovale electrodes. **Clin Neurosci. / Ideggyogy Szle**, 2009;**62**(9-10) 319-325
- Csercsa R, Dombovári B, Fabó D, Wittner L, Eross L, Entz L, Sólyom A, Rásonyi G, Szucs A, Kelemen A, Jakus R, Juhos V, Grand L, Magony A, Halász P, Freund TF, Maglóczky Z, Cash SS, Papp L, Karmos G, Halgren E, Ulbert I. **(2010)** Laminar analysis of slow wave activity in humans. **Brain.** 2010 Sep;133(9):2814-29. Epub 2010 Jul 23.
- Müller K., Fabó D, Entz L, Kelemen A., Halász P, Rásonyi G., **Erőss L** **(2010)** Outcome of vagus nerve stimulation for epilepsy in Budapest **Epilepsia** 2010 Jul;51 Suppl 3:115-20
- Fabo D, Magloczky Z, Wittner L, Pek A, **Eross L**, Czirjak S, Vajda J, Solyom A, Rasonyi G, Szucs A, Kelemen A, Juhos V, Grand L, Dombovari B, Halasz P, Freund TF, Halgren E, Karmos G, Ulbert I. (2008) Properties of in vivo interictal spike generation in the human subiculum. **Brain** 131:(Pt 2) 485-499
- Clemens Z, Mölle M, **Eross L**, Barsi P, Halász P, Born J. (2007) Temporal coupling of parahippocampal ripples, sleep spindles and slow oscillations in humans. **Brain** 130(Pt 11):2868-78
- Clemens Z., Mölle M, **Eross L**, Jakus R, Rásonyi G., HalászP, Born J **(2011)** Fine-tuned coupling between human parahippocampal ripples and sleep spindles **Eur J Neurosci.**2011 Feb;33(3):511-20
- L. Wittner, **L. Erőss**, S. Czirják, P. Halász, T. F. Freund and Zs. Maglóczky (2005) Surviving CA1 pyramidal cells receive intact perisomatic inhibitory input in the human epileptic hippocampus. **Brain** 128:138-152
- L. Wittner, **L. Erőss**, Z. Szabó, Sz. Tóth, S. Czirják, P. Halász, T.F. Freund and Zs. Maglóczky (2002) Synaptic reorganization of calbindin-positive neurons in the human hippocampal CA1 region in temporal lobe epilepsy. **Neuroscience** 115 (3):961-978.

Budapest, 01. February 2024.