**C**URRICULUM **V**ITAE

# Dr. med. Philipp Kellmeyer, M.phil.

## PERSONAL INFORMATION

Date of birth: May 4th 1979
Place of birth: Kaiserslautern, Germany
Family status: Married, four children (♂ *2010, ♀ *2012, ♂ *2014, ♀ *2016)

### Professional Affiliations

Position: Postdoctoral Researcher
Translational Neurotechnology Lab (formerly: Intracranial EEG and Brain Imaging Group)
University of Freiburg - Medical Center
Department of Neurosurgery, Epilepsy Center
Homepage: https://www.ieeg.uni-freiburg.de/team/pkellmeyer?set_language=de
Phone: ++49-761-270-87570
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Position: Scientific Member
BrainLinks-BrainTools
Cluster of Excellence (German Research Foundation, DFG)
University of Freiburg
https://www.brainlinks-braintools.uni-freiburg.de/

Position: Affiliated Researcher
Institute for Biomedical Ethics and History of Medicine
University of Zurich
http://www.ibme.uzh.ch/de/ethik/team/affiliiert/Philipp-Kellmeyer.html

## EDUCATION

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| 06/2009 | Medical doctorate (*magna cum laude*) at the Albert-Ludwigs-University Freiburg<br>Topic of dissertation: "White matter fiber tracts for phonological processing"<br>Thesis supervisor: Prof Dr. Cornelius Weiller (Department of Neurology, Head, University Medical Center, University of Freiburg) |
| 10/2006-<br>08/2007 | Postgraduate research at the "Centre for Speech, Language and the Brain", Prof Lorraine K. Tyler, University of Cambridge/UK<br>Degree: Master of Philosophy in Experimental Psychology (M.phil.) |
| 10/1999-<br>05/2006 | Medical studies, Ruprechts-Karls-University Heidelberg, Germany<br>Final grade: 1.66 (grading system: 1-6 with 1 very good and 6 failed) |
| 04/2002-<br>12/2005 | Parallel studies in political science (major), philosophy (minor) and history of medicine (minor) at the Ruprechts-Karls-University Heidelberg |
| 06/1998 | Abitur (diploma from German secondary school qualifying for university admission) at the Rittersberg-Gymnasium Kaiserslautern.<br>Final grade: 1.7 (grading system: 1-6 with 1 very good and 6 failed) |

## POSTGRADUATE CLINICAL TRAINING

01/2014 German board certification in neurology

09/2007-06/2015 Department of Neurology, University Medical Center, University of Freiburg, Germany. Head of Department: Prof Dr. Cornelius Weiller

Rotations: General neurological ward, neurological intensive care unit and stroke unit, neurological outpatient clinic ("policlinic"), neurological consultant for the university medical center. Electrophysiological training in EEG, EMG and EP. Training in neurovascular ultrasound. Neurologist at the interdisciplinary emergency department. Special interests and skills: functional magnetic resonance imaging (fMRI), diffusion-tensor imaging, electrophysiology (EEG, EP, EMG). Vertigo, gait and balance disorders, headache, epilepsy and neurovascular diseases. Speech and language pathology. Neuropsychiatric disorders.

05/2012-05/2013 Rotation in psychiatry: Centre for Psychiatry Emmendingen and Friedrich-Husemann-Klinik Buchenbach

## CONTINUING MEDICAL EDUCATION

04/2015 Advanced training as lead investigator in clinical trials ("Studienleiterkurs"). Certificate from the Clinical Research Centre, University Medical Centre Freiburg

10/2015 Training on regulatory aspects of medicinal products ("MPG-Kurs"). Certificate from the Clinical Research Centre, University Medical Centre Freiburg

07/2015 Training as investigator in clinical trials ("Prüfarztkurs"). Certificate from the Clinical Research Centre, University Medical Centre Freiburg

02/2012 Certificate for "evoked potentials" from the German Society for Clinical Neurophysiology (DGKN)

12/2011 Ministerial Certificate for the acquisition of competence in university teaching. Based on international standards, this certificate documents a particularly committed teaching qualification (120 classes at 45 min. each). The Competence Centre for University Teaching in Medicine, University of Tübingen, Germany

12/2011 Certificate for "electromyography" from the German Society for Clinical Neurophysiology (DGKN)

09/2011 Curriculum cognitive neurology (Module 3– Language and Speech) of the German Neurological Society (DGN)

## RESEARCH PROJECTS & POSITIONS

07/2015- Postdoctoral Researcher, Translational Neurotechnology Lab (formerly: "Intracranial EEG and Brain Imaging group)", University of Freiburg, Department of Neurosurgery, Epilepsy Centre, Clinical Research.
Project: "MOTOR-BIC: Implantierbare, bidirektionale Gehirn-Computer-Schnittstelle zur Wiederherstellung motorischer Funktionen"
(MOTOR-BIC: Implantable, Bidirectional Brain-Computer Interface for the Restoration of Motor Functions)

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| 01/2010-ongoing | Cortical and subcortical networks for speech production – a neurolinguistic model of speech motor programming |
| 07/2009-12/2009 | Mechanisms of brain reorganization in the language network |

## RESEARCH GRANTS

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| 01/2010-05/2010 | Cortical and subcortical networks for speech production – a neurolinguistic model of speech motor programming. Research Commission, Medical Faculty, University of Freiburg. |

## TEACHING EXPERIENCE

*University of Freiburg, Medical School*

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| 2007-2015 | Bedside Teaching, Clinical Examination for Medical Students at the Department of Neurology |

*University of Freiburg, Other Departments*

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| 10/2106 | Lecture "Effects of ageing and age-related neurological diseases on language function in the brain" in the lecture series "Language Dynamics Across the Life Span" at the Freiburg Institute of Advanced Studies |
| 10/2106 | Workshop on neuroethics. Institute for Cognitive Science |

*Other Universities*

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| 03/2017- | Guest lecturer at the Institute of Biomedical Ethics, Unuiversity of Zurich (8 hours per semester) |

*Supervised Theses:*

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| 2015 | Dr. med. Siobhán Ewert, "Neurale Korrelate der motorischen Sprechprogrammierung in der funktionellen Magnetresonanztomographie", *Magna cum laude*, University of Freiburg, Faculty of Medicine |

## SCIENTIFIC OUTREACH & SCIENCE COMMUNICATION

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| 11/2016 | Guest blog post: "On the ethics of machine learning applications in clinical neuroscience", The Neuroethics Blog, Emory University. http://www.theneuroethicsblog.com/2016/11/on-ethics-of-machine-learning.html |
| 10/2016 | Blog post: "Mind the accountability gap: On the ethics of shared autonomy between humans and intelligent medical devices", Practical Ethics blog, University of Oxford http://blog.practicalethics.ox.ac.uk/2016/10/guest-post-mind-the-accountability-gap-on-the-ethics-of-shared-autonomy-between-humans-and-intelligent-medical-devices/ |
| 05/2016 | Talk at the BrainLink-BrainTools film lecture series "Science Fiction in a Reality Check" on *Eternal Sunhine of the Spotless Mind* (Dir.: Michel Gondry) |
| 04/2016 | Participation in the 7th "Science Jam" of the BrainLinks-BrainTools Cluster of Excellence |

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| 11/2015 | Interview for Medizintechnologie.de on ethical aspects of Brain-Computer Interfaces. https://www.medizintechnologie.de/infopool/medizin-technologie/2015/medizintechnik-darf-der-ethischen-aufarbeitung-nicht-davongaloppieren/ |

## OTHER SCIENTIFIC ACTIVITIES

- Member of the Advisory Board of the Neuroethics Network (http://neuroethicsnetwork.com/)

- Member of the Rapid Action Task Force (RATF) of the International Neuroethics Society (INS), advising the INS president on neuroethical issues (Term: 2016-2019)

- Ad-hoc reviews for scientific journals: Brain, Neuroimage, Neuropsychologia, Stroke, European Journal of Neurology, Journal of Neuroscience

## PROFESSIONAL MEMBERSHIPS

German Society for Clinical Neurophysiology (DGKN), International Neuroethics Society (INS), Society for Neuroscience (SfN), Organization for Human Brain Mapping (OHBM)

## SCHOLARSHIPS

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| 10/2006-09/2007 | Harrison Watson Junior Studentship<br>Full scholarship, Clare College, University of Cambridge, Cambridge/UK |
| 07/2003-10/2003 | Junior Ethics Fellow, "Department of Ethics, Trade, Human Rights and Health Law", World Health Organization, Geneva, Switzerland |
| 2000-2006 | Full student scholarship of the "Evangelisches Studienwerk Villigst e.V." http://www.evstudienwerk.de |

## PUBLICATIONS

*peer-reviewed journal articles*

**Kellmeyer P**, Cochrane T, Müller O, Mitchell C, Ball T, Fins JJ, Biller-Andorno N. The Effects of Closed-Loop Medical Devices on the Autonomy and Accountability of Persons and Systems. Camb Q Healthc Ethics. 2016 Oct;25(4):623-33.

Hans FP, Hoeren CJ, **Kellmeyer P**, Hohloch L, Busch HJ, Bayer J. Possibly preventable cardiac arrest in a morbidly obese patient - a comment on the 2015 ERC guidelines. Scand J Trauma Resusc Emerg Med. 2016 Oct 4;24(1):116.

**Kellmeyer P**, Ziegler W, Peschke C, Juliane E, Schnell S, Baumgaertner A, Weiller C, Saur D. Fronto-parietal dorsal and ventral pathways in the context of different linguistic manipulations. Brain Lang. 2013 Nov;127(2):241-50.

Kümmerer D, Hartwigsen G, **Kellmeyer P**, Glauche V, Mader I, Klöppel S, Suchan J, Karnath HO, Weiller C, Saur D. Damage to ventral and dorsal language pathways in acute aphasia. Brain. 2013 Feb;136(Pt 2):619-29.

Vry MS, Saur D, Rijntjes M, Umarova R, **Kellmeyer P**, Schnell S, Glauche V, Hamzei F, Weiller C. Ventral and dorsal fiber systems for imagined and executed movement. Exp Brain Res. 2012 Jun;219(2):203-16.

Saur D, Schelter B, Schnell S, Kratochvil D, Küpper H, **Kellmeyer P**, Kümmerer D, Klöppel S, Glauche V, Lange R, Mader W, Feess D, Timmer J, Weiller C. Combining functional and anatomical connectivity reveals brain networks for auditory language comprehension. Neuroimage. 2010 Feb 15;49(4):3187-97.

Saur D, Kreher BW, Schnell S, Kümmerer D, **Kellmeyer P**, Vry MS, Umarova R, Musso M, Glauche V, Abel S, Huber W, Rijntjes M, Hennig J, Weiller C.
Ventral and dorsal pathways for language. Proc Natl Acad Sci U S A. 2008 Nov 18;105(46):18035-40.

Seiler CM, **Kellmeyer P**, Kienle P, Büchler MW, Knaebel HP; INSECT Study Group. Assessment of the ethical review process for non-pharmacological multicentre studies in Germany on the basis of a randomised surgical trial.
J Med Ethics. 2007 Feb;33(2):113-8.

*Non-peer reviewed journal articles*

Saur D, **Kellmeyer P**, Weiller C. Reply to Yamada: The extreme capsule is the ventral pathway for language. PNAS. 106:E15. Letter. 2008.2

Biller-Andorno N und **Kellmeyer P**. "Wie schützen wir die Lebendspender?" in: Die Zukunft der Tranplantationsmedizin. (Bern: Swiss National Research Fund, NFP 46). 2004

**Kellmeyer P** und Geisler B. Article Response zu: MacAuley D: "Systematic review of evidence supporting preparticipation physical examinations for athletics," Student BMJ, October 2003.

*Book chapters*

**P. Kellmeyer.** "Ethische Fragen bei Neurotechnologien" [Ethical aspects of neurotechnology]. In: *Mensch-Maschine-Interaktion. Handbuch zu Geschichte – Kultur – Ethik.* [Human-Machine-Interaction. Compendium on its History – Culture – Ethics]. Forthcoming in 2017 from J.B. Metzler Publishing (part of Springer Nature).

Biller-Andorno N und **Kellmeyer P**. "The „special case": protection for living organ donors in developing countries." In: *Ethik und Recht, Bd.2: Die Zukunft der Transplantation von Zellen, Geweben und Organen*. Basel: Schwabe. 2007

## TALKS & POSTER PRESENTATIONS

02/2017 Talk with the title "„Ethical challenges from emerging neurotechnology: Humans and intelligent devices in interaction" at the lecture series Contemporary debates: Neuroethicsat the University of Basel, Switzerland

01/2017 Talk with the title "Ethical Challenges of Brain-Computer Interfaces" at the Symposium Mechanized Brains, Embodied Technologies, Restored Movements Philosophical and Ethical Implications of Neurotechnological Interventions of the BL-BT Cluster of Excellence at the University of Freiburg, Germany

11/2016 Posters: "Responsible Algorithmics: On the Ethics of Machine Learning in Neuroscience" (awarded with book prize, €150) and "Proportionality as a Guiding Principle for Regulating Invasive Neurotechnological Medical Devices".
*Annual Meeting of the International Neuroethics Society*, San Diego, USA.

12/2015 Talk "Ethical Challenges of Brain-Computer Interfaces for severely paralyzed patients". Neuroethics Lecture Series. *Center for Bioethics. Harvard Medical School, Boston, USA.*

06/2015 Talk "Using neuroimaging to inform end-of-life-decisions in patients with brain injury" *ICM Neuroethics Network meeting, Paris, France June 17th-19th 2015*

10/2014 Talk "Grading consciousness: can and should fMRI be used to inform end-of-life-decisions in patients with brain injury?" *Research Colloquium on biomedical ethics. Institute of Biomedical Ethics and History of Medicine, University of Zurich, Switzerland, Prof Dr. med. Dr. phil. Nikola Biller-Andorno*

11/2012 Talk "Parametric modulation of phonetic complexity with fMRI reveals regions involved in speech motor programming".
*12th annual meeting of the German Society for Aphasia Research (GAB), Leipzig, Germany*

09/2010 Talk "Brain regions modulated by articulatory complexity. Exploiting a model for apraxia of speech"
*83th annual meeting of the German Neurological Society (DGN), Mannheim, Germany*

08/2010 Talk "Brain regions modulated by articulatory complexity – a model for apraxia of speech"
*11th International Science of Aphasia Conference, Potsdam, Germany*

11/2009 Talk "White matter fiber connections subserving phonological processing"
*9th annual meeting of the German Society for Aphasia Research (GAB), Leipzig, Germany*

10/2009 Poster: "Ventral and dorsal white matter pathways for phonological transformation processes"
*1st annual Neurobiology of Language Conference, Chicago, USA*

09/2009 Talk "Ventral and dorsal fronto-parietal fiber pathways for phonological transformation processes"
*82th annual meeting of the German Neurological Society (DGN), Nürnberg, Germany*

09/2008 Talk "Age-related fronto-temporal reorganization of function in auditory language processing"
9*th International Science of Aphasia Conference, Chalkidiki, Greece*

09/2008 Poster „Age-related functional activity in sentence processing in the neural language system"
*81th annual meeting of the German Neurological Society (DGN), Hamburg,, Germany*

06/2005 Talk "Promoting performance, demanding responsibility: Sponsorship of academic giftedness in the Evangelisches Studienwerk Villigst"
*Workshop „Lieber ein Esel als ein Genie? Hochbegabtenförderung und Elitenbildung in der*

*demokratischen Gesellschaft.", Ev. Akademie Bad Herrenalb, Germany*

05/2005 Talk "The 'brain problem'. On the neurophilosophy of the representation of the self".
*Research Colloquium in the philosophy of science. Prof Olaf Müller, Department of Philosophy, Humboldt University Berlin*

11/2003 Talk "Education and Comics"
*5th Workshop "Intercultural Bioethics" of the German Research Foundation (DFG), Ruhr-University Bochum, Germany*

03/2003 Talk "Metodologías innovadoras en la educación bioética" (Innovative teaching methods in bioethics)
*Centro Interdisciplinario de Estudios en Bioética der Universidad de Chile in Santiago de Chile*

## INTERNSHIPS and OTHER ACTIVITIES

11/2004-11/2005 Student research assistant at the Department of Ophthalmology, University of Heidelberg Medical Center. Development of digital histology atlas.

07/2004-10/2004 Internship at "Physicians for Human Rights" (with Karen Leiter), Boston, USA. Working on gender issues in HIV in Sub-Sahara Africa

08/2003-10/2003 Internship at the "Department of Ethics, Trade, Human Rights and Health Law" of the World Health Organization (WHO) in Geneva, Switzerland (with Nikola Biller-Andorno and Alexander Capron).
Preparation and participation of the WHO expert consultation "Ethics, Access and Safety in Tissue and Organ Transplantation: Issues of Global Concern" in Madrid. Delegate at the conference "Globalization, Justice and Health" in Washington, D.C., 11/2013.

10/2002-03/2003 Internship at the "Regional Program on Bioethics" of the Pan American Health Organization (PAHO)/ WHO in Santiago de Chile with Prof Fernando Lolas.
Delegate at the World Social Forum in Porto Alegre/Brazil

10/2000-10/2001 Board member (Director for Medical Education) of the European Medical Students' Association (EMSA). Organization of the workshop "Working abroad – free movement and settlement of physicians in Europe" in Aalborg, Denmark. Patron: Romano Prodi, President of the EU Commission.

## SOFTWARE SKILLS

*Operating systems:* Windows, Linux, Android
*Data processing, statistical analysis:* Excel, SPSS, Matlab
*Brain imaging:* SPM, FSL, Freesurfer, GingerALE, MRICron
*Others:* MS office, Adobe Audition, Audacity, GIMP

## LANGUAGES

German (native language), English (fluent), Spanish (very good), French (good), Italian (basic)

## OTHER INTERESTS

Swimming, soccer, chess, philosophy, history of medicine, poetry translation, guitar, piano