Curriculum Vitae: N. Jeremy Hill

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Education and Training

INSTITUTION AND LOCATION	DEGREE (if applicable)	END DATE MM/YYYY	FIELD OF STUDY
University of Oxford, Oxford	BA	06/1995	Experimental Psychology
University of Oxford, Oxford	MA	03/2002	Experimental Psychology
University of Oxford, Oxford	DPHIL	03/2002	Experimental Psychology; Statistics
Max Planck Institute for Biological Cybernetics, Tübingen	Postdoctoral Fellow	12/2004	Machine Learning

Positions and Employment

1995 – 2002 Research Assistant, Department of Experimental Psychology, University of Oxford
1996 – 2002 Doctoral student, Department of Experimental Psychology, University of Oxford
2002 – 2004 Research Scientist, Max Planck Institute for Biological Cybernetics, Tübingen
2005 – 2010 Senior Research Scientist, Max Planck Institute for Biological Cybernetics, Tübingen
2010 – 2014 Research Scientist II, Wadsworth Center, New York State Dept. of Health, Albany, NY
2010 – 2014 Project Coordinator for the BCI2000 Project, Wadsworth Center, New York State Dept. of Health, Albany, NY
2013 – 2016 Founding Editor-in-Chief (jointly with C.S. Nam), Taylor Francis journal "Brain Computer Interfaces"
2014 – 2020 Research Scientist, Burke Medical Research Institute, White Plains, NY
2015 – 2020 Director of Neurotechnology, Blythedale Children's Hospital, Valhalla, NY
2020 – Senior Research Scientist & Clinical Systems Director – National Center for Adaptive Neurotechnologies, Stratton VA Medical Center, Albany, NY

Other Experience and Professional Memberships

1999 – 2000 Tutor for first-year undergraduates on the course "Sensory Processes and Perception", Department of Experimental Psychology, University of Oxford, UK
2002 – Invited reviewer of journal article submissions, Science: Translational Medicine, Neuroimage, Frontiers in Neuroscience, PLoS ONE, Attention, Perception and Psychophysics, the Journal of the Acoustical Society of America, the Journal of Neural Engineering, IEEE Transactions on Biomedical Engineering, IEEE Transactions on Neural Systems and Rehabilitation Engineering, Neurocomputing, Neural Networks and the Journal of Machine Learning Research, as well as for the machine-learning conferences NIPS and DAGM, and two books on brain-computer interfacing (MIT Press 2007, OUP 2012)
2004 – 2013 Supervisor of one Ph.D. student, three German Diplom (Masters) research students, one Bachelor's-thesis and several undergraduate interns, MPI Tübingen and Wadsworth Center
2005 Co-devised and delivered a week-long practical course "Machine Learning in Neuroscience" to undergraduates on the "Bioinformatik" (Computational Biology) course, University of Tübingen
2007 – 2008 Manager of a project involving 20 scientists and clinicians, implementing brain-computer interface technology for communication in a completely-locked-in patient using implanted (ECoG) electrodes, MPI Tübingen and University of Tübingen, Germany
2009 – 2013 Invited lecturer, 5th, 7th, 8th and 10th BCI2000 Workshops (also co-organizer of the 8th Workshop)
2010 – 2013 Program Committee Member, Fourth International Brain-Computer Interface Meeting (Pacific

	Grove, CA, 2010)—also, workshop coordinator at both the fourth (2010) and fifth (2013) meetings
2011 –	Member, Society for Neuroscience
2011	Invited guest lecturer on the course "Introduction to Brain-Computer Interfacing" for Bachelor and Masters students, Radboud University Nijmegen, The Netherlands
2012	External reviewer for grant application, King Abdullah University of Science and Technology
2013	External reviewer for grant application, Netherlands Organization for Scientific Research (NWO)
2016 –	Founder member, BCI Society
2016 – 2019	Invited Lecturer on 2016, 2017 and 2019 NCAN Short Course in Adaptive Neurotechnologies, National Center for Adaptive Neurotechnologies

Honors

1995	George Humphrey prize for best research project, Department of Experimental Psychology, University of Oxford, UK
1996	Maplethorpe Scholarship, St. Hugh's College, Oxford, UK
1996	Christopher Welch Scholarship in Biological Sciences, University of Oxford, UK
2007	Invited speaker at launch event, BrainGain, the Dutch brain-computer interfacing research consortium, Nijmegen, The Netherlands
2008	"Spotlight" for outstanding contributed paper, Neural Information Processing Systems (NIPS)
2009	Invited keynote speaker at the mini-symposium "Assistive Machine Learning for People with Disabilities", NIPS Conference
2010	Invited speaker at the plenary symposium, "Non-Invasive Brain-Computer Interfaces: Current Developments and Applications", BIOMAG Conference, Dubrovnik, Croatia
2013	Research featured in New Scientist magazine, http://www.newscientist.com/article/dn24553
2013	Platform presentation, Society for Neuroscience meeting
2015	Invited speaker, Burke Centennial Research Symposium
2018	"Doctors of Distinction" award ("Biomedical Breakthrough" category), Westfair Communications, Westchester County, NY

Patents Applied-For

1. Hill NJ, Prusky GT, Carmel JB. Optokinesys. Full patent applications submitted Jun 2017, published Jan 2018 as WO2018006013A1 and Oct 2019 as US20190320962A1 (Pending).
2. Mooney SWJ, Hill NJ, Prusky GT. Systems and Methods for Evaluating Contrast Sensitivity and Other Visual Metrics. Full patent applications submitted Oct 2019 as US 16/661,596 and PCT/US19/57638.

Contribution to Science

1. **Development and validation of non-verbal systems for neurological assessment and visuomotor reinforcement:** The following publications used quantitative and objective methods for assessing neurological function, and adapted them for use outside laboratory settings, hardening them into robust systems that can be used in field applications such as bedside testing. The principal focus was vision testing. Our first system, OptokineSys (described in Suner et al 2017) was unprecedented in its ability to measure visual psychophysical thresholds from non-communicative subjects, and opened the door to objective quantification of cerebral visual impairment. Its successor, Curveball (Mooney et al. 2018), is unprecedented in the speed with which it can measure contrast sensitivity functions. The technical infrastructure that allows Curveball to present research-quality visual stimuli and to manipulate them in real time, even on low-cost portable hardware, has been made publicly available under the name "Shady" (Hill et al. 2019).

a. Hill NJ, Mooney SWJ, Ryklin EB, Prusky GT. Shady: A software engine for real-time visual stimulus manipulation. J Neurosci Methods. 2019 May 15;320:79-86. PubMed PMID: 30946876; PubMed Central PMCID: PMC6524778.
b. Mooney SWJ, Hill NJ, Tuzun MS, Alam NM, Carmel JB, Prusky GT. Curveball: A tool for rapid measurement of contrast sensitivity based on smooth eye movements. J Vis. 2018 Nov 1;18(12):7. PubMed PMID: 30452585; PubMed Central PMCID: PMC6238984.
c. Suner M, Prusky GT, Carmel JB, Hill NJ. Longitudinal Quantification of Eye-Movement Impairments after Pontine Hemorrhage. Front Neurol. 2017;8:165. PubMed PMID: 28512444; PubMed Central PMCID: PMC5411421.

2. **Estimation and hypothesis testing in psychophysics**: My doctoral thesis, and the two associated 2001 papers, introduced statistical techniques for estimating thresholds and slopes of psychometric functions, and for accurate hypothesis testing using these measures. My software toolbox `psignifit`, introduced and validated in these publications, was adopted by many psychophysicists around the world for the purpose of fitting curves to psychometric functions and obtaining confidence intervals on the resulting parameters. In contrast to previous approaches, `psignifit` achieved more accurate results by taking account of nuisance parameters in fitting, and by using a resampling method instead of asymptotic approximations to predictive distributions. Worldwide adoption of my software resulted in more than 2,000 citations for the two papers according to Web Of Science. This demonstrates my capability and experience in building software tools that other scientists find usable and which empower them to advance their research.

a. Hill N. Testing Hypotheses about Psychometric Functions. University of Oxford: Doctoral Thesis; 2001.
b. Wichmann FA, Hill NJ. The psychometric function: II. Bootstrap-based confidence intervals and sampling. Percept Psychophys. 2001 Nov;63(8):1314-29. PubMed PMID: 11800459.
c. Wichmann FA, Hill NJ. The psychometric function: I. Fitting, sampling, and goodness of fit. Percept Psychophys. 2001 Nov;63(8):1293-313. PubMed PMID: 11800458.

3. **Development of brain-computer interface communication methods for completely paralyzed users:** Brain-computer interfaces (BCIs) seek to use brain signals directly in real time to perform useful functions such as implement communication systems for paralyzed people. My publications in this section address the algorithmic, practical, and ethical challenges of bringing BCI systems out of the laboratory (where they are typically tested only on healthy subjects) and into homes and hospitals where the target users can use them. Another important aspect of this general endeavor has been the development of BCIs driven by auditory stimuli (see below).

a. Hill NJ, Lal TN, Schröder M, Hinterberger T, Wilhelm B, Nijboer F, Mochty U, Widman G, Elger C, Schölkopf B, Kübler A, Birbaumer N. Classifying EEG and ECoG signals without subject training for fast BCI implementation: comparison of nonparalyzed and completely paralyzed subjects. IEEE Trans Neural Syst Rehabil Eng. 2006 Jun;14(2):183-6. PubMed PMID: 16792289.
b. Haselager P, Vlek R, Hill J, Nijboer F. A note on ethical aspects of BCI. Neural Netw. 2009 Nov;22(9):1352-7. PubMed PMID: 19616405.
c. Martens S, Bensch M, Halder S, Hill J, Nijboer F, Ramos-Murguialday A, Schoelkopf B, Birbaumer N, Gharabaghi A. Epidural electrocorticography for monitoring of arousal in locked-in state. Front Hum Neurosci. 2014;8:861. PubMed PMID: 25374532; PubMed Central PMCID: PMC4204459.
d. Bensch M, Martens S, Halder S, Hill J, Nijboer F, Ramos A, Birbaumer N, Bogdan M, Kotchoubey B, Rosenstiel W, Schölkopf B, Gharabaghi A. Assessing attention and cognitive function in completely locked-in state with event-related brain potentials and epidural electrocorticography. J Neural Eng. 2014 Apr;11(2):026006. PubMed PMID: 24556584.

4. **Real-time decoding of brain signals that reflect auditory stimulus processing:** In 2005 I was the first to publish on the feasibility of basing a brain-computer interface (BCI) on selective attention to auditory stimuli. I refined and explored this system in a series of recent publications. In this way, I invented a system

by which the act of selective *listening* can be detected from a few seconds of EEG signal. This has applications in communication systems for people who are completely "locked in" (especially since such users often have trouble seeing visual stimuli clearly) and also in real-time neurofeedback applications that have the potential to improve the important cognitive function of selective auditory attention.

a. Hill NJ, Lal TN, Bierig K, Birbaumer N, Schölkopf B. An Auditory Paradigm for Brain-Computer Interfaces. Advances in Neural Information Processing Systems. 2005; 17:569-576.
b. Hill NJ, Moinuddin A, Häuser AK, Kienzle S, Schalk G. Communication and control by listening: toward optimal design of a two-class auditory streaming brain-computer interface. Front Neurosci. 2012;6:181. PubMed PMID: 23267312; PubMed Central PMCID: PMC3525941.
c. Hill NJ, Schölkopf B. An online brain-computer interface based on shifting attention to concurrent streams of auditory stimuli. J Neural Eng. 2012 Apr;9(2):026011. PubMed PMID: 22333135; PubMed Central PMCID: PMC3366495.
d. Hill NJ, Ricci E, Haider S, McCane LM, Heckman S, Wolpaw JR, Vaughan TM. A practical, intuitive brain-computer interface for communicating 'yes' or 'no' by listening. J Neural Eng. 2014 Jun;11(3):035003. PubMed PMID: 24838278; PubMed Central PMCID: PMC4096243.

5. **Advancement of signal-processing and machine-learning methods for brain-computer interfacing:** In these publications and others, I developed and validated custom analysis methods and signal processing pipelines for the essential problem of brain-computer interfacing: extracting useful information from short brain signal segments. It is in the translation from lab to bedside, where data-sets tend to be smaller and noisier, that BCI systems stand to benefit most from the increased robustness of state-of-the-art machine-learning techniques.

a. Hill NJ, Lal TN, Tangermann MW, Hinterberger T, Widman G, Elger CE, Schölkopf B, Birbaumer N. Toward Brain-Computer Interfacing. Dornhege G, Millán J, Hinterberger T, McFarland DJ, Müller K, editors. Cambridge, MA: MIT Press; 2007. Chapter 14, Classifying Event-Related Desynchronization in EEG, ECoG and MEG signals; p.235-260.
b. Hill J, Farquhar J, Martens S, Biessmann F, Schölkopf B. Effects of Stimulus Type and of Error-Correcting Code Design on BCI Speller Performance. Advances in Neural Information Processing Systems. 2009; 21:665-672.
c. Farquhar J, Hill NJ. Interactions between pre-processing and classification methods for event-related-potential classification: best-practice guidelines for brain-computer interfacing. Neuroinformatics. 2013 Apr;11(2):175-92. PubMed PMID: 23250668.
d. Hill NJ, Häuser AK, Schalk G. A general method for assessing brain-computer interface performance and its limitations. J Neural Eng. 2014 Apr;11(2):026018. PubMed PMID: 24658406; PubMed Central PMCID: PMC4113089.

Ongoing Research Support

U24-NS109103, NINDS 05/01/19–04/30/24
BCI2000: Software Resource for Adaptive Neurotechnology Research PI: Brunner, Peter
Role: Co-Investigator

R01-EB026439, NIBIB 07/15/18–06/30/22
BCI2000+: A Software Platform for Adaptive Neurotechnologies PI: Brunner, Peter
Role: Co-Investigator

Completed Research Support

1R01EY030156-01, NIH National Eye Institute
Grading visual impairment in children with brain injury — 06/01/2019–03/20/2020
Role: Key Personnel — PI: Prusky, Glen

1R21EY026753-01A1, NIH National Eye Institute
Automated Assessment of Visuomotor Function in Children with Brain Injury — 07/01/2016 – 06/30/2018
Role: Principal Investigator — PIs: Carmel, Jason; **Hill, Nicholas Jeremy**; Prusky, Glen

Institutional Grant, Eisenberg Ahsen Foundation
Control of Behavior through Interhemispheric Connections — 08/01/2014 – 04/30/2016
Role: Key Personnel — PI: Carmel, Jason

Institutional grant, The Thomas and Agnes Carvel Foundation
Computer-generated stimulation of vision in children with brain injury — 08/01/2014 – 06/30/2015
Role: Key Personnel — PI: Prusky, Glen

5R01NS069551, NIH National Institute for Neurological Disorders and Stroke
Changing a Reflex to Improve Locomotion — 10/01/2013 – 07/31/2014
Role: Key Personnel — PI: Thompson, Aiko

5R01EB000856, NIH National Institute for Biomedical Imaging and Bioengineering
A General-Purpose Brain-Computer Interface (BCI) System — 11/22/2010 – 09/30/2013
Role: Key Personnel — PIs: Wolpaw, Jonathan; Schalk, Gerwin

Research Stipend, Max Planck Society, Germany
Brain-Computer Interfaces — 01/01/2009 – 10/30/2010

SFB550 (B9), German Research Council (DFG)
Development of machine-learning algorithms for brain-computer interfaces — 01/01/2006 – 12/31/2008
Role: Co-Investigator — PI: Schölkopf, Bernhard

Complete List of Publications

Hill NJ, Mooney SWJ, Ryklin EB, Prusky GT. Shady: A software engine for real-time visual stimulus manipulation. Journal of Neuroscience Methods 320:79-86. doi: 10.1016/j.jneumeth.2019.03.020 (2019)

Ratnadurai Giridharan S, Gupta D, Pal A, Mishra AM, **Hill NJ**, Carmel JB. Motometrics: A Toolbox for Annotation and Efficient Analysis of Motor Evoked Potentials. Frontiers in Neuroinformatics 13:8. doi: 10.3389/fninf.2019.00008 (2019)

Mooney SWJ, **Hill NJ**, Tuzun MS, Alam NM, Carmel JB, Prusky GT. Curveball: A tool for rapid measurement of contrast sensitivity based on smooth eye movements. Journal of Vision 18(12):7. doi: 10.1167/18.12.7 (2018)

Thompson AK, Carruth H, Haywood R, **Hill NJ**, Sarnacki WA, McCane LM, Wolpaw JR, McFarland DJ. Effects of Sensorimotor Rhythm Modulation on the Human Flexor Carpi Radialis H-Reflex. Frontiers in Neuroscience 12:505. doi: 10.3389/fnins.2018.00505 (2018)

Wen TC, Lall S, Pagnotta C, Markward J, Gupta D, Ratnadurai-Giridharan S, Bucci J, Greenwald L, Klugman M, **Hill NJ**, Carmel JB. Plasticity in One Hemisphere, Control From Two: Adaptation in Descending Motor Pathways After Unilateral Corticospinal Injury in Neonatal Rats. Frontiers in Neural Circuits 12:28. doi: 10.3389/fncir.2018.00028 (2018)

Suner M, Prusky GT, Carmel JB, **Hill NJ**. Longitudinal Quantification of Eye-Movement Impairments after Pontine Hemorrhage. Frontiers in Neurology 8:165. doi: 10.3389/fneur.2017.00165 (2017)

Smeragliuolo AH, **Hill NJ**, Disla L, Putrino D. Validation of the Leap Motion Controller using markered motion capture technology. Journal of Biomechanics 49(9):1742-1750. doi: 10.1016/j.jbiomech.2016.04.006 (2016)

Kubanek J, **Hill NJ**, Snyder LH, Schalk G. Cortical alpha activity predicts the confidence in an impending action. Frontiers in Neuroscience 9:243. doi: 10.3389/fnins.2015.00243 (2015)

Martens S, Bensch M, Halder S, **Hill J**, Nijboer F, Ramos-Murguialday A, Schoelkopf B, Birbaumer N, Gharabaghi A. Epidural electrocorticography for monitoring of arousal in locked-in state. Frontiers in Human Neuroscience 8:861. doi: 10.3389/fnhum.2014.00861 (2014)

Gupta D, Jeremy Hill N, Brunner P, Gunduz A, Ritaccio AL, Schalk G. Simultaneous real-time monitoring of multiple cortical systems. Journal of Neural Engineering 11(5):056001. doi: 10.1088/1741-2560/11/5/056001 (2014)

Gupta D, **Hill NJ**, Adamo MA, Ritaccio A, Schalk G. Localizing ECoG electrodes on the cortical anatomy without post-implantation imaging. Neuroimage Clinical 6:64-76. doi: 10.1016/j.nicl.2014.07.015 (2014)

Hill NJ, Ricci E, Haider S, McCane LM, Heckman S, Wolpaw JR, Vaughan TM. A practical, intuitive brain-computer interface for communicating 'yes' or 'no' by listening. Journal of Neural Engineering 11(3):035003. doi: 10.1088/1741-2560/11/3/035003 (2014)

Bensch M, Martens S, Halder S, **Hill J**, Nijboer F, Ramos A, Birbaumer N, Bogdan M, Kotchoubey B, Rosenstiel W, Schölkopf B, Gharabaghi A. Assessing attention and cognitive function in completely locked-in state with event-related brain potentials and epidural electrocorticography. Journal of Neural Engineering 11(2):026006. doi: 10.1088/1741-2560/11/2/026006 (2014)

Hill NJ, Häuser AK, Schalk G. A general method for assessing brain-computer interface performance and its limitations. Journal of Neural Engineering 11(2):026018. doi: 10.1088/1741-2560/11/2/026018 (2014)

Farquhar J, **Hill NJ**. Interactions between pre-processing and classification methods for event-related-potential classification: best-practice guidelines for brain-computer interfacing. Neuroinformatics 175-92. doi: 10.1007/s12021-012-9171-0 (2013)

Hill NJ, Moinuddin A, Häuser AK, Kienzle S, Schalk G. Communication and control by listening: toward optimal design of a two-class auditory streaming brain-computer interface. Frontiers in Neuroscience 6:181. doi: 10.3389/fnins.2012.00181 (2012)

Hill NJ, Gupta D, Brunner P, Gunduz A, Adamo MA, Ritaccio A, Schalk G. Recording human electrocorticographic (ECoG) signals for neuroscientific research and real-time functional cortical mapping. Journal of Visualized Experiments 64:3993. doi: 10.3791/3993 (2012)

Hill NJ, Schölkopf B. An online brain-computer interface based on shifting attention to concurrent streams of auditory stimuli. Journal of Neural Engineering 9(2):026011. doi: 10.1088/1741-2560/9/2/026011 (2012)

Pei X, **Hill J**, Schalk G. Silent communication: toward using brain signals. IEEE Pulse 3(1):43-6. doi: 10.1109/MPUL.2011.2175637 (2012)

Gomez-Rodriguez M, Peters J, **Hill J**, Schölkopf B, Gharabaghi A, Grosse-Wentrup M. Closing the sensorimotor loop: haptic feedback facilitates decoding of motor imagery. Journal of Neural Engineering 8(3):036005. doi: 10.1088/1741-2560/8/3/036005 (2011)

Grosse-Wentrup M, Schölkopf B, **Hill J**. Causal influence of gamma oscillations on the sensorimotor rhythm. Neuroimage 56(2):837-42. doi: 10.1016/j.neuroimage.2010.04.265 (2010)

Murguialday AR, **Hill J**, Bensch M, Martens S, Halder S, Nijboer F, Schoelkopf B, Birbaumer N, Gharabaghi A. Transition from the locked in to the completely locked-in state: a physiological analysis. Clinical Neurophysiology 122(5):925-33. doi: 10.1016/j.clinph.2010.08.019 (2010)

Martens SM, Mooij JM, **Hill NJ**, Farquhar J, Schölkopf B. A graphical model framework for decoding in the visual ERP-based BCI speller. Neural Computing 23(1):160-82. doi: 10.1162/NECO_a_00066 (2010)

Shin H, **Hill NJ**, Lisewski AM, Park J. Graph Sharpening. Expert Systems with Applications 37(12):7870-7879 (2010)

Haselager P, Vlek R, **Hill J**, Nijboer F. A note on ethical aspects of BCI. Neural Networks 22(9):1352-7. doi: 10.1016/j.neunet.2009.06.046 (2009)

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Hill J, Farquhar J, Martens S, Biessmann F, Schölkopf B. Effects of Stimulus Type and of Error-Correcting Code Design on BCI Speller Performance. Advances in Neural Information Processing Systems 21:665-672 (2009)

Hinterberger T, Widman G, Lal TN, **Hill J**, Tangermann M, Rosenstiel W, Schölkopf B, Elger C, Birbaumer N. Voluntary brain regulation and communication with electrocorticogram signals. Epilepsy & Behavior 13(2):300-6. doi: 10.1016/j.yebeh.2008.03.014 (2008)

Curnow T, Cowie DA, Henning GB, **Hill NJ**. Some observations on the masking effects of Mach bands. Journal of the Optical Society of America A 24(10):3233-41. doi: 10.1364/josaa.24.003233 (2007)

Zalevski AM, Henning GB, **Hill NJ**. Cue combination and the effect of horizontal disparity and perspective on stereoacuity. Spatial Vision 20(1-2):107-38. doi: 10.1163/156856807779369706 (2007)

Hill NJ, Lal TN, Tangermann MW, Hinterberger T, Widman G, Elger CE, Schölkopf B, Birbaumer N. Classifying Event-Related Desynchronization in EEG, ECoG and MEG signals . Chapter 14 (pp 235-260) in: Toward Brain-Computer Interfacing (Dornhege G, Millán J, Hinterberger T, McFarland DJ, Müller KR, editors). Cambridge, MA: MIT Press (2007).

Hill NJ, Lal TN, Schröder M, Hinterberger T, Wilhelm B, Nijboer F, Mochty U, Widman G, Elger C, Schölkopf B, Kübler A, Birbaumer N. Classifying EEG and ECoG signals without subject training for fast BCI implementation: comparison of nonparalyzed and completely paralyzed subjects. IEEE Transactions on Neural Systems & Rehabilitation Engineering 14(2):183-6. doi: 10.1109/TNSRE.2006.875548 (2006)

Kammer T, Puls K, Strasburger H, **Hill NJ**, Wichmann FA. Transcranial magnetic stimulation in the visual system. I. The psychophysics of visual suppression. Experimental Brain Research 160(1):118-28. doi: 10.1007/s00221-004-1991-1 (2005)

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Schröder M, Lal TN, Hinterberger T, Bogdan M, **Hill J**, Birbaumer N, Rosenstiel W, Schölkopf B. Robust EEG Channel Selection Across Subjects for Brain Computer Interfaces. EURASIP Journal on Applied Signal Processing 19:3103-3112 (2005)

Lal TN, Hinterberger T, Widman G, Schröder M, **Hill J**, Rosenstiel W, Elger CE, Schölkopf B, Birbaumer N. Methods Towards Invasive Human Brain Computer Interfaces. Advances in Neural Information Processing Systems 17:737-744 (2005)

Henning GB, Hoddinott KT, Wilson-Smith ZJ, **Hill NJ**. Masking effect produced by Mach bands on the detection of narrow bars of random polarity. Journal of the Optical Society of America A 21(8):1379-87. doi: 10.1364/josaa.21.001379 (2004)

Wichmann FA, **Hill NJ**. The psychometric function: I. Fitting, sampling, and goodness of fit. Perception & Psychophysics 63(8):1293-313. doi: 10.3758/bf03194544 (2001)

Wichmann FA, **Hill NJ**. The psychometric function: II. Bootstrap-based confidence intervals and sampling. Perception & Psychophysics 63(8):1314-29. doi: 10.3758/bf03194545 (2001)

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Henning GB, Millar RW, **Hill NJ**. Detection of incremental and decremental bars at different locations across Mach bands and related stimuli. Journal of the Optical Society of America A 17(7):1147-59. doi: 10.1364/josaa.17.001147 (2000)