Reading List for Erasmus IP "Mathematical and Computational Models of Perception and mental Chronometry", 15-25 April, Loaningdale Centre, Biggar

Background Reading on "Bayesian Models in Perception" (J Hillis)

Hillis, J.M., Ernst, M.O., Banks, M.S., & Landy, M.S. (2002). Combining sensory information: mandatory fusion within, but not between, senses. *Science*, *298*, 1627-1630.

Kersten, D., Mamassian, P., & Yuille, A. (2004). Object perception as Bayesian inference. *Annu Rev Psychol*, *55*, 271-304.

Knill, D. C., & Pouget, A. (2004). The Bayesian brain: the role of uncertainty in neural coding and computation. *Trends Neurosci*, *27(12)*, 712-719.

Knill, D.C. & Richards. W. (1996) *Perception as Bayesian Inference*, Cambridge University Press.

Student Presentation Options for "Bayesian Models in Perception" (J Hillis)

Brainard, D. H., & Freeman, W. T. (1997). Bayesian color constancy. *Journal of the Optical Society of America A*, *14(7)*, 1393-1411.

Geisler, W. S., Perry, J. S., Super, B. J., & Gallogly, D. P. (2001). Edge co-occurrence in natural images predicts contour grouping performance. *Vision Research*, *41(6)*, 711-724.

Knill, D. C. (2003). Mixture models and the probabilistic structure of depth cues. *Vision Research*, *43(7)*, 831-854.

Mamassian, P., & Landy, M. S. (1998). Observer biases in the 3D interpretation of line drawings. *Vision Res*, *38(18)*, 2817-2832.

Mamassian, P., & Landy, M. S. (2001). Interaction of visual prior constraints. *Vision Res*, *41(20)*, 2653-2668.

Najemnik, J., & Geisler, W. S. (2005). Optimal eye movement strategies in visual search. *Nature*, *434(7031)*, 387-391.

Schrater, P., & Kersten, D. (2000). How optimal depth cue integration depends on the task. *International Journal of Computer Vision*, *40(1)*, 72-91

Simoncelli, E. P., & Adelson, E. H. (1996). Noise removal via Bayesian wavelet coring. *Proceedings of 3rd IEEE International Conference on Image Processing*, *I*, 379-382.

Weiss, Y., Simoncelli, E. P., & Adelson, E. H. (2002). Motion illusions as optimal percepts. *Nat Neurosci*, *5(6)*, 598-604.

Background Reading on "Mental Chronometry" (R Ulrich)
(M=Mathematical Modelling, **S=**Modelling, and Simulation **E=**Experiments)

Ulrich, R., & Stapf, K.H. (1984). A double-response paradigm to study stimulus intensity effects upon the motor system in simple reaction time experiments. *Perception & Psychophysics, 36*, 545-558. (**ME**)

Ulrich, R., & Dietz, K. (1985). The short-term storage as a buffer memory between long-term storage and the motor system: A simultaneous-processing model. *Journal of Mathematical Psychology, 29*, 243-270. (**ME**)

Ulrich, R., & Giray, M. (1986). Separate-activation models with variable base times: Testability and checking of cross-channel dependency. *Perception & Psychophysics, 39*, 248-254. (**MES**)

Ulrich, R. (1987). Threshold models of temporal-order judgements evaluated by a ternary response-category approach. *Perception & Psychophysics, 42*, 224-239. (**MES**)

Rammsayer, T., & Ulrich, R. (2001). Counting models of temporal discrimination in humans. *Psychonomic Bulletin & Review, 8*, 270-277. (**ME**)

Miller, J., & Ulrich, R. (2003). Simple reaction time and statistical facilitation: A parallel grains model. *Cognitive Psychology, 46*, 101-151. (**MS**)

Student Presentation Options for "Mental Chronometry" (R Ulrich)

Ulrich, R., & Giray, M. (1989). Measuring reaction times: How accurate must a clock be? Good news for bad clocks! *British Journal of Mathematical and Statistical Psychology, 42*, 1-12. (**M**)

Ulrich, R., & Wing, A., (1991). A recruitment theory of force-time relations in the production of brief force pulses: The Parallel Force Unit Model. *Psychological Review, 98*, 268-294. (**MES**)

Ulrich, R., & Miller, J. (1993). Information processing mechanisms generating lognormally distributed reaction times. *Mathematical Psychology, 37*, 513-525. (**MS**)

Ulrich, R., & Miller, J. (1994). Effects of outlier exclusion on reaction time analysis. Journal of *Experimental Psychology: General*, 123, 34-80. (**M**)

Ulrich, R., & Miller, J. (1997). Tests of race models for reaction time in experiments with asynchronous redundant signals. *Journal of Mathematical Psychology, 41*, 367-381. (**M**)

Ulrich R. & Miller, J. (2004). Threshold estimation in two-alternative (2AFC) tasks: The Spearman-Kärber method. *Perception & Psychophysics, 66*, 517-533. (**MS**)

Rinkenauer, G., Osman, A., Ulrich, R., Müller-Gethmann, H., & Mattes, S. (2004). On the locus of speed-accuracy trade-off in reaction time: Inferences from the lateralized readiness potential. *Journal of Experimental Psychology: General, 133*, 261-282. (**EM**)

Miller, J., Ulrich, R. & Rolke, B. (in press). Parallel and serial processing in dual-tasking: An optimization account. *Cognitive Psychology*. (**ME**)

Bausenhart K. M., Rolke, B., Hackley, S. A., & Ulrich, R. (in press). The locus of temporal preparation effects: Evidence from the psychological refractory period paradigm. *Psychonomic Bullentin & Review* (**E**)

Ulrich, R., Fernadez, S., Jentzsch, I., Rolke, B., Schröter, H. & Leuthold, H. (in press). The psychological refractory period: Is response execution part of the processing bottleneck? *Psychological Science*. (**E**)

Ulrich, R., Nitschke, J., & Rammsayer,T. (in press). Crossmodal temporal discrimination: Assessing the predictions of a general pacemaker-counter model. *Perception & Psychophysics* (**ME**)

Background Reading on "Psychophysical Models" (F Wichmann)

Wichmann, F.A., & Hill, J.N. (2001a). The psychometric function: I Fitting, sampling, and goodness of fit. *Perception & Psychophysics*, *63(8)*. 1293-1313.

Wichmann, F.A., & Hill, J.N. (2001b). The psychometric function: II Bootstrap-based confidence intervals and sampling. *Perception & Psychophysics*, *63(8)*. 1314-1329.

Kuss, M., Jäkel, F., & Wichmann, F.A. (2005). Bayesian inference for psychometric functions. *Journal of Vision*, *5*, 478-492.

Wichmann, F.A., Graf, A.B.A., Simoncelli, E.P., Bülthoff, H.H., & Schölkopf, B. (2005). Machine learning applied to perception: decision-images for gender classification. In: *Advances in neural information processing systems*, *Vol. 17* (Eds. L.K. Saul, Y.Weiss, & L. Bottou), pp.1489-1496.

Student Presentation Options for "Psychophysical Models" (F Wichmann)

H. Levitt (1971). Transformed Up-Down Methods in Psychoacoustics. *Journal of the Acoustical Society of America*, *49*, 467-477.

Treutwein, B. (1995) Adaptive psychophysical procedures. *Vision Research*, *35*, 2503-2522.

King-Smith, P.E., Grisby, S.S., Vingrys, A.J., Benes, S.C., & Supowit, A. (1994). Efficient and unbiased modification of the QUEST threshold method: Theory, simulations, experimental evaluation and practical implementation. *Vision Research*, *34(7)*, 885-912.

Watson, A.B., & Fitzhugh, A. (1990). The method of constant stimuli is inefficient. *Perception & Psychophysics*, *47(1)*, 87-91.