

Using Eye-tracking in social science research projects

<p>Purpose and content:</p>	<p><u>Description:</u></p> <p>Much of the rapid growth of research on attention and especially eye-tracking has been driven by the fast technological development in recent years and a sharp decline in the costs of eye-tracking equipment. Remote, head-mounted, portable and mobile devices will now be used in many PhD projects because it is possible to generate larger samples of respondents in new (decision) environments. Eye-tracking makes it possible to track and study attentional processes in great detail, classically in front of computer screens but also in mobile contexts, for example when using digital devices, like smartphones or smartglasses (Google glasses, EPSON Moverio) for studying purchasing behavior in retail stores.</p> <p>The qualifications and skills obtained during master programs often hardly prepare students to conduct eye-tracking studies, to avoid potential pitfalls when using the eye-tracking equipment and to analyze the complex eye-tracking datasets. Especially in the beginning of a PhD project these challenges appear to be overwhelming.</p> <p>PhD students completing the course will gain an overview of research in the field of bottom-up and top-down attentional process and search in decision-making. We will give an overview on latest developments in the field, including learning and contextual biases in decision sequences and the evaluation of decision theories. From a practical perspective PhD students will get insight in the process of setting up eye-tracking experiments, conducting a first empirical study on their own and analyzing an eye-tracking dataset. PhD students will have the opportunity to use remote eye-tracking devices together with their own laptops and use the provided software to analyze their datasets. Based on this experience, students will be able to critically reflect their experimental work and improve the planning of their own future experiments. Moreover, PhD students will learn about ways of analyzing eye-tracking data, for example using multi-level regression models.</p> <p><u>Course Content:</u></p> <p>The following topics will be part of the course:</p> <ul style="list-style-type: none"> -Eye-tracking basics -Visual attention and search in decision making -Eye-tracking measures and their meaning (pupil dilation, fixation duration, eye blinks, saccadic distances) -Handling and management of eye-tracking data -Mobile eye-tracking equipment and annotation of fixations -OpenSource eye-tracking software
------------------------------------	--

	<ul style="list-style-type: none"> -Alternative process-tracing techniques (Mouselab, Think aloud) -Analysis of eye-tracking data: An overview of different analytical approaches and examples for the use of more advanced (multi-level) methods -Hands-on experiment with portable eye-tracking equipment (SMI Smart Glasses): Setup of a small experiment using low-frequency, portable eye-trackers to record data, analysis of the dataset, presentation of first results in class. -Hands-on mobile eye-tracking equipment: Track a short sequence with the mobile equipment
Format:	<p>The course has a lecture/discussion format and a hands-on experimental component. The interactive lectures will focus on the theoretical background of visual attention and search in the context of decision-making. In a hands-on practical exercise PhD students will setup a small eye-tracking experiment and use eye-tracking equipment to record eye movements. Students can then use the provided open source software for analyzing the data as well as other (open source) statistical software package of their choice. Finally, they will present their first results in class. The practical part can take place in a classroom. PhD Students will be able to use their own laptops in combination with a portable plug-in low frequency eye-tracking device. Moreover, we will also bring mobile eye-tracking equipment to the class so that PhD students will get familiar with new mobile eye-tracking technologies, existing open source software and the potential pitfalls of these new devices.</p>
Learning objectives:	<p>After completing the course, PhD students will have:</p> <ul style="list-style-type: none"> -an understanding of problems associated with conducting eye-tracking experiments using different sorts of equipment. -an understanding of the data generating process. -an ability to assess the prospects and limits of their own empirical research. -an ability to setup eye-tracking experiments on their own avoiding serious pitfalls related to the use of eye-tracking technology. -an understanding of the various ways in which eye-tracking data can be analyzed. -an understanding of state-of-the-art theories of attention and search.
Prerequisites:	<p>This PhD course is targeted for PhD students from business (particular marketing), psychology, experimental economic research, information systems and other social sciences, who are planning or starting an empirical research project using eye-tracking or other process-tracing approaches. Basic knowledge (master level) in statistics as well as knowledge in statistic software packages like SPSS, SAS, Stata, R or other programs is desirable but is not a precondition.</p>

<p>Literature:</p>	<p>Chandon, P., Hutchinson, J. W., Bradlow, E. T., & Young, S. H. (2009). Does in-store marketing work? Effects of the number and position of shelf facings on brand attention and evaluation at the point of purchase. <i>Journal of Marketing</i>, 73(6), 1-17.</p> <p>Janiszewski, C., Kuo, A., & Tavassoli, N. T. (2013). The influence of selective attention and inattention to products on subsequent choice. <i>Journal of Consumer Research</i>, 39(6), 1258-1274.</p> <p>Meißner, M., Scholz, S., & Decker, R. (2011). Using Eyetracking and Mouselab to Examine How Respondents Process Information in Choice-based Conjoint Analysis. In <i>Proceedings of the Sawtooth Software Conference 2010</i>, Newport Beach, California.</p> <p>Musalem, A., Meißner, M., & Huber, J. (2013). Do Motivated and Incidental Processing Distort Con-joint Choices?. Available at SSRN.</p> <p>Orquin, J. L., & Mueller Loose, S. (2013). Attention and choice: a review on eye movements in deci-sion making. <i>Acta psychologica</i>, 144(1), 190-206.</p> <p>Pieters, R. (2008). A review of eye-tracking research in marketing. <i>Review of marketing research</i>, 4, 123-147.</p> <p>Pieters, R., & Warlop, L. (1999). Visual attention during brand choice: The impact of time pressure and task motivation. <i>International Journal of Research in Marketing</i>, 16(1), 1-16.</p> <p>Pfeiffer, J., Meißner, M., Prosiemel, J., & Pfeiffer, T. (2014). Classification of Goal-Directed Search and Exploratory Search Using Mobile Eye-Tracking. In <i>Proceedings of the International Conference on Information Systems 2014 (ICIS 2014)</i>.</p> <p>Schulte-Mecklenbeck, M., Kühberger, A., & Ranyard, R. (2011). The role of process data in the development and testing of process models of judgment and decision making. <i>Judgment and Decision Making</i>, 6(8), 733-739.</p>
<p>Course responsible:</p>	<p>Associate Professor Martin Meißner</p>
<p>Lecturer:</p>	<p>Associate Professor Martin Meißner, Assistant Professor Jacob Orquin (Aarhus University), Assistant Professor Jella Pfeiffer (Karlsruhe Institute of Technology, Germany), Thies Pfeiffer (Bielefeld University, Germany)</p>
<p>Start Date:</p>	<p>14-09-2015</p>
<p>End Date:</p>	<p>18-09-2015</p>

Location:	Esbjerg Campus
Application deadline:	August 21, 2015
Teaching language:	English
Fee:	None
Credits:	5 ECTS
Evaluation:	<p>Certificates of completion will be issued based on class attendance and participation, the submitted assignments, and an oral presentation.</p> <p>Each student must submit a description (max. 2,500 words) of the (potential) eye-tracking or pro-cess-tracing part of his/her PhD project to Martin Meißner (Meissner@sam.sdu.dk) no later than August 21, 2015. The description should include: (1) a short introduction; (2) (preliminary) research question(s); (3) a detailed description of the data or data collection process; (4) a detailed description of the planned experiments; and (5) key references. During the PhD course each student will be asked to present: (a) a short description of his/her research project; (b) the relation of the PhD project to existing eye-tracking research, the theoretical background, and the chosen or planned experiments; (c) arguments why the proposed methodology to analyse the data is appropriate.</p>