





Cognition and Behavior Lab 2013–2014

COBE Lab 2013-2014

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Foreword



Per Baltzer Overgaard Vice-Dean for Research

I take great pride and satisfaction in witnessing how Cognition and Behavior Lab has provided researchers at School of Business and Social Sciences and Aarhus University in general, with state-of-the-art facilities for conducting modern experimental behavioural research. Controlled laboratory experiments have become an essential tool in many branches of social science, and several research groups at School of Business and Social Sciences were conducting such research prior to establishing the Lab. As an economist, it was not hard to see that it would be sub-optimal to set up half a dozen smaller labs, each one serving only one or two research groups.

The school therefore decided to support the broad grass roots initiative for a common lab infrastructure. The initiative was backed by research groups from several departments from School of Business and Social Sciences, and also by researchers from the Faculty of Arts and researchers from the Centre for Integrative Neuroscience (CFIN). CFIN is already established as an excellent facility for neuroscience research and researchers there increasingly use behavioural studies as a complement to brain scanning studies. Having both a cutting edge neuroscience research facility and a behavioural research lab enables School of Business and Social Sciences to attract and retain top researchers applying these methods within a wide range of academic disciplines, and indeed across disciplines, in line with the University's strategic emphasis on interdisciplinary research.

The interaction of researchers across traditional disciplines is another benefit of a shared research facility, as witnessed by the attendance to courses, workshops and meetings held at the Lab. Lastly I am very happy to have a scientific advisory board for the Lab, who are highly regarded and active researchers each in their own field.

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cobelab.au.dk	
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People

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Martin Bagger PhD Student Department of Business Administration mb@badm.au.dk

Opinion

A message from the board

Dear members and friends of Cognition and Behavior Lab,

This report marks sixteen months since our opening. Those of us who have been involved since the beginning cannot help but feel proud that it all actually works. Like new parents, we would probably not feel the least bit embarrassed about posting pictures of cute eye trackers with fluffy baby hats and a big smile on the monitor on our social media pages. So join us and celebrate the lab: may it grow and prosper!

A conviction shared by all lab members is that the controlled experiment is the gold standard of scientific investigation. Few scientists would contest this, even if they prefer other methods in their own research.

However, there are always questions we have to face up to: internal validity, external validity and the size of our effects. Several of our research groups belong to communities in which such methodological disputes have become rather heated lately. The social cognition community is experiencing a crisis of replicability, the behavioural economics community is trying to come to terms with the trans-situational inconsistency of preferences, the neuroscience community is struggling with the fallacy of reverse inference.

None of these issues are new in themselves, and like previous generations of scientists we must learn not to immunise our research against criticism but to embrace it: learning not to give in to the temptations of p-hackJoachim Scholderer

Professor

ing, accepting that experimental effects should be conceptualised as random and not fixed, and developing more conclusive research designs for neuroscience will make us better scientists. Our decision to insist on research ethics training for all members of Cognition and Behavior Lab is one aspect of how we try to respond to these challenges. The decision of most of our research groups to send their doctoral students to multi-level modelling courses is another. A third aspect is our collaboration across disciplines: much methodological soul-searching within particular research communities can be avoided by learning from other communities who fought the same methodological debates before.



Infrastructure for research



Dan Mønster Lab Manager

Cognition and Behavior Lab has now existed for almost one and a half years and has provided researchers with a much needed place to conduct controlled behavioural experiments using a wide range of methodologies. The lab has already been used by researchers in political science, consumer behaviour, behavioural economics, psychology, linguistics, religious studies and biology. Although the lab has only existed as a physical entity for a short time, it existed long before as a vision. Alexander Koch, Julia Nafziger and Panos Mitkidis were some of the early visionaries of an interdisciplinary lab facility. With encouragement from others, the vision soon became more concrete. There was a phase when we dreamt of this new and shiny lab, in which every conceivable experiment could be performed, and dreaming turned into planning, lobbying, forming a coalition, writing applications, and even making a budget. After 2012 things became very concrete when Joachim Scholderer and his ConsumerLab joined forces with those working to make the lab a reality. Per Baltzer Overgaard, Vice-Dean for Research at School of Business and Social Sciences (BSS), decided to support this grass roots initiative, not only as a shared infrastructure for research at BSS, but also for other faculties at Aarhus University, and with the necessary funding secured, the vision became a reality.

It is a great privilege to work with so many talented researchers and technical staff, that together worked to turn the vision into a blue print and the blue print into what is now Cognition and Behavior Lab. As one of our international visitors said at the lab opening, "You always think that everyone else has a lab like this, but then, when you get there, you realise that they just have some old crap fitted into lousy rooms. But here, you just built it!" The result is not just a physical lab, but also a community of researchers using the lab in a collaborative spirit. A few days after opening, we had around 30 associated researchers and that number has more than doubled since. Whilst not all of those have used the lab yet, it has been a busy period where routines and procedures had to be established and a good deal of improvisation was needed along the way when unforeseen events or requirements came our way. Doing research will never become routine, and routines will constantly need to be changed. The lab therefore has to strike a balance between providing standardised facilities and procedures on the one hand and being flexible enough to handle all reasonable requests on the other hand.

In the following pages, we hope to give an impression of what the lab is, and—more importantly—the kind of research it enables our colleagues to do.

Opening of the Lab

The L ab officially opened on 23 August 2013, with Vice-Dean for Research Per Baltzer Overgaard welcoming a large audience. Professor Peter Munk Christiansen, Chairman of The Danish Council for Independent Research, delivered the official opening address, in which he commended the new experimental facilities and expressed his high expectations for the future research to be conducted at the lab.

Five speakers showcased research methodologies, which would be facilitated by using the lab, providing a flavour of the breadth and depth of research possibilities (see below). A tour of the lab followed the presentations, in which Prof. Alexander Koch, PhD student Anne Peschel and Postdoc Kristian Tylén gave attendees a practical introduction to equipment housed at the lab.

The opening was concluded with a reception in the nearby atrium garden.

Researcher Showcases

Christina Gravert, PhD Student, Department of Economics and Business

A must lie situation: on the avoidance of giving negative feedback.

Lene Aarøe, Associate Professor, Department of Political Science and Government

Can you feel it? Skin conductance response to disgusting images predicts anti-immigration attitudes.

Joachim Scholderer, Professor, Department of Business Administration

Opening the black box of choice: the role of attention and perceptual learning mechanisms in violations of the invariance assumption.

Panos Mitkidis, PhD Student, Department of Culture and Society

Beyond synchrony: coordinated hands and hearts in a complex joint action task.

Christine Cuskley, Postdoc, Institute for Complex Systems, La Sapienza University, Rome

Observing social learning and evolution in the lab.



Spread over two floors — spread over all departments

Cognition and Behavior Lab is located at the Fuglesangs Allé campus, with laboratory rooms situated over two floors. The ground floor encompasses office space for visiting researchers, in addition to Lab 1, the computer-based interaction lab. This resource comprises Lab 1a with nine laptops, Lab 1b with 24 desktop computers, and a control room with two admin computers. The admin computers can manage the 33 computers via the use of the LabRun software, which was developed specifically for COBE Lab in autumn 2014.

On the floor below Lab 1 is Lab 2, which

consists of three smaller rooms (Lab 2a, 2b and 2c), two larger open spaces (Lab 2f and 2m), a participant waiting area, a kitchen, further office space and a storage room. Lab 2a, 2b and 2c are apt for individual participant studies, such as eye tracking and one-to-one interviews. Six desktop computers equipped with enhanced graphics capabilities are located to support such studies.

Lab 2f and Lab 2m allow the researcher flexibility in being able to adapt a large floor space to meet diverse research needs. Furthermore, both rooms can be used for meetings. The inclusion of a kitchen allows for sample preparation and storage, facilitating sensory analysis to be conducted. A fundamental principle of establishing COBE Lab was to support multiple disciplines and enhance interdisciplinarity. Hence, the lab is open to all Aarhus University researchers, and as a consequence, varied methodologies and approaches become housed under one roof. The lab organises workshops, courses and associated researcher meetings to further communication ties and share knowledge between departments.



Booked hours by type of lab

Equipment

Eye tracking

Two eye trackers are available, namely the Tobii T60XL and the EyeLink 1000. Both eye trackers have been used by numerous researchers since the lab conception. The former has an intuitive user interface and, alongside the large 24 inch monitor, offers researchers the ability to record gaze data from large stimulus presentations in an unobtrusive manner. The EyeLink 1000 features a high sampling rate (up to 2000 Hz), supporting the researcher in collecting subtle insights into cognitive and neurological processes.

Psychophysiology

The lab has two BIOPAC MP150 systems with a range of amplifiers and accessories that allow researchers to measure various types of psychophysiological activity, including respiration, electrocardiogram (ECG). electrodermal activity and electromyography. Some of these data types can be acquired wirelessly, allowing the participants more freedom of movement. Two Cortrium C3 devices are also available. These lightweight, wearable devices, which measure ECG, respiration, temperature and acceleration, can store data onto a memory card and stream wirelessly to allow for continuous monitoring of the signal. These devices are also ideal for field studies outside the lab.

Electroencephalography

Measuring central nervous system activity can be done by many techniques, but most of these are not suited for a behavioural lab setting. Advances in electroencephalography (EEG) equipment have made using EEG feasible outside clinical settings, and the lab has two dry electrode cap systems from Brain Products. Each system is capable of recording 16 channels of EEG data, and comes in a compact format also suitable for applications outside the lab.

Response boxes

Four Psychology Software Tools response boxes, compatible with E-Prime computer software, allow researchers to program computer experiments that require precise measures such as reaction time.

Audiovisual

Versatility in being able to record audio and video under different experimental conditions is possible with a range of digital cameras, tripods and lamps allowing both for professional quality still images and unobtrusive video recordings. Two labs are fitted with large screen monitor and projection systems, and headphones are available for delivering auditory stimuli.



Booked hours by eye tracker.







BIOPAC equipment

Brain Products actiCAP (EEG)

Tobii T60 XL eye tracker



Booked hours by department

Software

LabRun

LabRun is software specifically designed to ease the running of experiments in Lab1, the computer-based interaction lab. It was developed by computer science students Bálint Kis and Donatas Tutinas, from Business Academy Aarhus. The software allows researchers to efficiently run computer based experiments. LabRun is user-friendly, versatile and intuitive, and overcomes the challenges that prior users of computer-based experiments have faced, such as installing external software as well as distributing and collecting experiment files. Furthermore, LabRun integrates with the Lab's data management system, to securely store data on a server after each session.

LabRun features

LabRun contains the following features:

- Start up and shut-down computers.
- Transfer and run files/folders to client computers.
- Execute experiment files via z-Tree, E-Prime and PsychoPy and collect output files.
- Automatically generate payment receipts for z-Tree experiments.
- Launch Google Chrome on specific client computers.
- Initiate a custom program on clients and collect specified data using defined file extensions.
- Store data securely in the data management system.
- Screen-share functionality: share the admin screen with client computers.
- Disable typical keyboard shortcuts (e.g. Alt-F4) on client computers.
- Disable/enable internet activity on client computers.

Software at the lab

Visual presentation software

- PsychoPy
- E-Prime
- Experiment Builder (for use with EyeLink 1000 eye tracker)
- Tobii Studio (for use with Tobii T60 XL eye tracker)

Experimental economics software

• z-Tree

Survey software

• Qualtrics

Behavioural software

- BIOPAC Acqknowledge 4
- Noldus FaceReader
- Noldus Observer XT
- Noldus Theme

EEG recording and analysis

• OpenViBE



Number of participants in studies by department

Teaching and outreach

Research is the top priority at the Lab, but teaching and training students in experimental methods is important, both from an educational point of view and as a way to recruit talented students to pursue research careers in experimental behavioural science.

As shown in the table below, the Lab has been used in teaching courses in econom-

ics, religious studies and biology, and more courses are expected to follow.

An introduction to experimental behavioural methods was given to marketing and psychology students from two secondary schools, namely Holstebro Handelsgymnasium and Holstebro Gymnasium og Hf. The two schools toured the Lab, participated in an experiment and were given welcoming classes. The visit was hosted by Department of Business Administration PhD Student Anne Peschel in February 2014, and again with a new class in November 2014. Anne Peschel also hosted a visit by students from Egaa Gymnasium along with their teachers in social science and mathematics.

Course title	Instructor	Department
Experimental economics	Postdoc Leonie Gerhards	Economics and Business
Religionsvidenskabelig eksperimentel metode	Assistant Professor Kristoffer L. Nielbo	Culture and Society
Experimental science of religion	Assistant Professor Kristoffer L. Nielbo	Culture and Society
Behavioural biology	Professor Trine Bilde; Assistant Professor Lars Bach	Bioscience



Participant pool

Sona research participation system

An external participant pool system, Sona Systems, allows COBE Lab researchers to attract and recruit participants, and subsequently manage experimental sessions effectively.

Researchers can set prerequisite characteristics (e.g. Danish language proficiency), and specify previous studies as qualifiers/ disqualifiers for subsequent participation.

From a participant perspective, study information including description, duration, payment information and location are clearly displayed. Sona Systems have produced an app for smartphones/tablets, providing convenience to sign up for studies whilst away from a computer.

Over 3000 individuals are now registered in the participant pool. The majority of participants are in their early-mid 20's, with a mean age of 25.

The table below provides a summary of the current pool based on a prescreen survey, completed by approximately 90% of participants. It can be seen that there are slightly more females than males, a high level of English language proficiency (more than 80%) and a dominance of Aarhus University students comprising the pool. Of these students, 65% are enrolled at School of Business and Social Sciences, followed by Arts (18%), Science and Technology (10%) and Health (6%).

The graph below suggests that the majority of participants have taken part in only a small number of studies, providing evidence against an argument that the lab could foster professional participants.

Regarding how participants come to find out about the lab, the most effective forms of communication are reported to be (i) via a friend referral, (ii) via a lecture presentation and (iii) via a flyer.

Ν	Mean age	Male/Female	Danish language?	English language?	L/R Handed	Wear Glasses?	AU Student?
3002	25 ± 3.9	44/56%	Yes: 85%	Yes: 82 %	10/90%	Yes: 31%	Yes: 85%



How many studies have people participated in?



How did participants hear about COBE Lab?

cobelab.au.dk

Overview of cobelab.au.dk

The site cobelab.au.dk is an internal project resource for researchers, and features a lab wiki, booking calendars for lab rooms and pieces of equipment, and a data management system.

Lab management assign researchers to their respective research project and track progress of projects using a site feature that was implemented in late 2014. Important information pertaining to each project can be uploaded, allowing better management of studies.

For security reasons, the site can only be accessed while on campus or via a VPN connection.

Online booking system and wiki

Individual rooms and notable items of equipment, such as eye trackers and psychophysiological hardware, can be booked online. Researchers can view which lab rooms and equipment are reserved and by whom. Calendars for resources can be synchronised with mail client calendars, such as Outlook and Gmail, easing the research process for all.

The wiki documents important information in the form of lab manuals, links to external resources, an equipment list and educational materials from the various workshops/ courses that are held at the Lab. Lab documentation includes:

An advised research procedure

- Information concerning research ethics
- Booking-calendar manual
- Sona participant pool manual
- Payment procedure manual
- Equipment list
- Lab etiquette

Data management system

The data management system allows researchers to securely store data in accordance with data protection regulations.

Researchers can upload various file formats to a secure server, from where the data are available to all members of the research project.

For studies conducted in the computer-based interaction lab, researchers have the option to directly import data to the data management system via LabRun software.



Research procedure

A three stage framework advises on the chronological procedure to conduct research at COBE Lab. The framework is implemented on cobelab.au.dk, allowing lab management to indicate where research projects are currently positioned, in addition to identifying the next cause of action to take. The 'Planned stage' necessitates diligent planning by the researcher, with study plans reviewed by the Ethics Advisory Group and lab management. After completion, the researcher moves to the 'Active stage', which involves communication with AU Finance, booking resources, recruiting participants, data collection and reimbursing participants. The final stage, 'Completed', denotes the study as finalised, with the data protection agency informed on an annual basis of completed studies. The researcher is prohibited from collecting and storing more data under the same research project at this stage.

PLANNED STAGE	ACTIVE STAGE	COMPLETED STAGE
Ethics certification received for all researchers including assistants.	Payment template request sent to AU Finance with cobelab@au.dk CC'ed; or	Study complete.
Research Ethics Checklist submitted.	payment procedure organised. Sona and cobelab.au.dk project and user accounts created.	Completion notice sent to data protection agency.
Research Ethics Checklist reviewed and approved.	Resources booked on cobelab@au.dk and study active on Sona.	
Prestudy Form submitted.	All equipment, software and hardware collected and installed.	
Prestudy Form reviewed and approved.	Payment template received from AU Finance; or payment procedure finalised.	
Optional: meeting with lab management.	Data stored in COBE Lab data management system.	
	Payment information completed.	Time

COBE Lab research procedure.

Studies

War of attrition

Dan Nguyen¹, Alexander Koch¹, Michael Bang Petersen², Lene Aarøe² Dept: ¹Economics and Business; ²Political Science and Government

Price image transfer

Anne Peschel Dept: Business Administration

Pain and prosociality

Panos Mitkidis Dept: Culture and Society

Berrymeat

Morten Fenger, Klaus Grunert Dept: Business Administration

Tribal leadership

Lasse Laustsen Dept: Political Science and Government

MISTRA

Dennis Gadeberg, Kristian W. Iversen, Jacob L. Orquin Dept: Business Administration **Self control** Alexander Koch, Julia Nafziger Dept: Economics and Business

Religious authority Uffe Schjødt, Kristoffer L. Nielbo, Marc Andersen Dept: Culture and Society

Visual bias in ASD Line Gebauer¹, Joshua Skewes² Dept: ¹Psychology and Behavioural Sciences; ²Culture and Society

Distal intentions Mikkel Vinding Dept: Clinical Medicine

Life history strategy Michael Bang Petersen, Lene Aarøe Dept: Political Science and Government

Talking about pitch

Karl Møller, Njord Solberg, Kristian Tylén Dept: Aesthetics and Communication **Time for gender** Panos Mitkidis, Kristoffer L. Nielbo Dept: Culture and Society

Joint reasoning Kristian Tylén Dept: Aesthetics and Communication

Experimental behavioural science Lars Bach Dept: Culture and Society

Mælkestudie (Milk study) Anne Peschel, Madeleine Broman Toft Dept: Business Administration

Mapping audition and vision Njord Solberg, Kristian Tylén Dept: Aesthetics and Communication

Social group perceptions Gitte Harrits Dept: Political Science and Government

Newspaper advertisements Iben H. Jeppesen, Jacob L. Orquin Dept: Business Administration Chocolate choice Rune Sønderby, Klaus Grunert Dept: Business Administration

Træt af din høfeber? (Tired of your hayfever?)

Peter Kenney Dept: Clinical Medicine

Role models Leonie Gerhards, Christina Gravert Dept: Economics and Business

Indirect food measures

Alexandra Kraus, Anne Peschel Dept: Business Administration

Exploration Emma von Essen Dept: Economics and Business

Cooperation Panos Mitkidis Dept: Culture and Society

Rhythm and labyrinth Panos Mitkidis Dept: Culture and Society

Life history cognition

Joshua Skewes¹, Michael Bang Petersen², Lene Aarøe² Dept: ¹Culture and Society; ²Political Science and Government

Ballot position effects

Søren Serrtizlew Dept: Political Science and Government

The monster experiment

Kristian Tylén¹, Riccardo Fusaroli¹, Jakob Arnoldi², Pernille Smith² Dept: ¹Aesthetics and Communication; ²Business Administration

Expectations and visual priming

Uffe Schjødt, Kristian Abell Dept: Culture and Society

Ritual action perception

Marc Andersen Dept: Culture and Society

Hierarchical

Oana Vuculescu, Carsten Bergenholtz Dept: Business Administration Public goods game

Panos Mitkidis Dept: Culture and Society

An economic experiment

Dan Nguyen, Emma von Essen Dept: Economics and Business

Goal setting study

Alexander Koch, Julia Nafziger Dept: Economics and Business

The optimally interacting minds extended

Kristian Tylén, Riccardo Fusaroli Dept: Aesthetics and Communication

Mechanoreceptors and oral fine motor

control Abhishek Kumar Dept: Dentistry

Intimacy in phone conversations

Ryuji Yamazaki¹, Chi-Chih Chang² Dept: ¹Culture and Society; ²iNANO

Ethics and data protection

Ethics certification

In spring 2014, ethics certification became mandatory for all researchers, including their assistants. The National Institutes of Health's free online course titled 'Protecting Human Research Participants' was chosen as course material. Taking approximately two hours to complete, the course refreshes the researcher with the key concepts of ethical behaviour, such as informed consent and the right of participants to withdraw.

After completion of the course, researchers send their certificate to lab management, who in turn, file certificates at cobelab.au.dk.

Ethics Checklist

On 29 November 2013 at an introductory workshop to COBE Lab for researchers, Associate Professor Joshua Skewes identified an uncertainty amongst social science researchers regarding standards and procedures for research ethics. To address this, the Ethics Advisory Group was formed, which besides Joshua consists of Assistant Professor Emma von Essen, Associate Professor Julia Nafziger and PhD Student Martin Bagger. The group review ethical practices for every study that takes place at COBE Lab, by reviewing the Ethics Checklist which researchers complete as part of the application to conduct research.

Data protection

In summer 2013, Cognition and Behavior Lab received an approval statement from the data protection agency (Datatilsynet), informing that the Lab met the regulations as stated in the Danish Act of Processing Personal Data.

The Lab are required to send an annual report of completed studies to the data protection agency. Once a study is complete, researchers are not allowed to collect and store more data under the same research project.

HOW CAN WE HELP? > Define and understand ethical issues in your research

Joshua Skewes helped form the Ethics Advisory Group.



Funding

Cognition and Behavior Lab provides readily available experimental facilities for researchers at Aarhus University. This makes many research projects more feasible and less costly than they would otherwise be. Several research groups have been successful in securing funding for projects related to the lab, and some examples are shown in the following table.

Project	PI (+ co-PIs)	Period	Funding body	Amount (DKK)
AU network for the computational mod- elling of complex interactions (CMCI)	Jacob Sherson	2014-2017	Interdisciplinary Network Scheme at Aarhus University	590 000
Behavioural antecedents of caste based exclusion and discrimination	Ritwik Banerjee	2014-2016	DFF, Ministry of Science and Education	1 800 000
CODE - conflict & democratization	Jørgen Møller (PI); Michael Bang Petersen, Svend-Erik Skaaning, Jakob Tolstrup	2015-2019	The Innovation Fund	16 000 000
Do group politics only matter for men? Investigating gender differences in re- sponding to group-political messages	Emily Cochran Bech	2014-2017	The Danish Council for Independent Research — Social Sciences	1 709 155
Food scares: consumer perception, risk communication and crisis management (SCARECOM)	Nina Veflen Olsen, Joachim Scholderer, Alexander Koch	2014–2017	Research Council of Norway, BIONÆR Programme	1 422 740
How to win with words	Michael Bang Petersen (PI), Lene Aarøe	2014-2017	The Velux Foundation	5 800 000
Improving public service provision: The causal effect of endogenous institutions	Søren Serritzlew	2011–2015	The Danish Council for Independent Research — Social Sciences	8 600 000
Memory and cooperation	Panos Mitkidis	2014-2016	IMC Seed	25 000

Project	PI (+ co-PIs)	Period	Funding body	Amount (DKK)
Pain and prosociality	Panos Mitkidis	2014–2016	IMC Seed	80 000
Political socialisation and evolutionary psychology	Michael Bang Petersen (PI), Lene Aarøe	2013-2014	IMC Seed	100 000
Problem representation, social influence and collective problems solving	Oana Vuculescu, Carsten Bergenholtz	2014	IMC Seed	30 000
READY: smart grid ready VPP controller for heat pumps	John Thøgersen (PI), Geertje Schuitema	2012-2014	Energinet.dk	739 000
Rhythm and competition	Panos Mitkidis	2014-2016	IMC Seed	20 000
The effects of life history on basic cogni- tive processing	Joshua Skewes, Lene Aarøe, Michael Bang Petersen	2014-2015	IMC Seed	30 000
Tribal leadership	Lasse Laustsen	2013	Dept. of Political Science and Government	10 000
What makes a student successful? A large-scale experimental investigation of behavioural correlates	Julia Nafziger (PI), Alexander Koch	2012–2014	AUFF, AU IDEAS	400 000
What makes a student successful? A large-scale experimental investigation of behavioural correlates	Alexander Koch (PI), Julia Nafziger, Leonie Gerhards	2013-2016	FSE	3 382 893

Courses and workshops

Recurrence Quantification Analysis 2-6 Sept 2013 Professor Charles Webber Jr.

PsychoPy course 31 Jan-4 Feb 2014 PhD Student Jonas Lindeløv

z-Tree course: 6-7 Feb 2014 Research Fellow Stefania Bortolotti

The renowned co-inventor and expert on Recurrence Quantification Analysis (RQA) Charles Webber Jr. from Loyola University Chicago, taught a five-day hands-on course on the RQA method.

RQA is a powerful analytical tool for the study of nonlinear dynamical systems. Since RQA methodology is independent of limiting constraints such as data set size, data stationarity, and assumptions regarding statistical distributions of data, RQA is ideally suited for physiological data as used by researchers at Cognition and Behavior Lab. Such data are often characterised by non-stationarity, transients, state changes, and noise from within and without the organism or process.

The course was organised and hosted by Postdoc Sebastian Wallot from Interacting Minds Centre at Aarhus University.

COBE Lab welcomed PsychoPy contributor and PhD fellow Jonas Lindeløv for a three day course on programming experiments in the stimulus presentation software PsychoPy.

The syllabus included an introduction to programming in Python (day 1), the programming language of PsychoPy, followed by tutorials concerning stimulus precision (day 2). On the final day, participants were assisted in coding their own experiments.

The course was free of charge to participants, who came from faculties including Arts, Health and BSS. Moreover, PhD students from University of Copenhagen also attended.

For further information regarding Jonas and PsychoPy, visit his blog: http://lindeloev.net/. Stefania Bortolotti from the University of Bologna came to teach a two-day z-Tree course at COBE Lab. Stefania has vast experience in programming z-Tree economics experiments and provided a wealth of knowledge regarding how best to use the software.

The course provided attendees with the basic tools to program experiments using the z-Tree language, and touched upon more advanced features, such as improving graphical layout and inserting multimedia content.

Students and researchers from the Departments of Business Administration, Economics and Business, and Political Science and Government attended the course.



Charles Webber Jr. taught a five day course at COBE Lab.

script =

stim.setPos(trial['pos']) stim.setOpacity(trial['opacity']) stim.draw() win.flip() response = event.getKeys() if response == trial['corrAns']: trial['score'] = 1 ppc.timer(script, 'stim, trial, event')

Participants of the course were taught how to programme experiments using the Python programming language.

Stefania Bortolotti taught a two-day course in the economics software z-Tree.

Eye tracking workshop 27 Mar 2014

Assistant Professor Jacob L. Orquin, PhD Student Anne Peschel and PhD Student Martin Bagger

Three associated researchers from the Department of Business Administration provided an interdisciplinary audience with an excellent introduction to eye tracking research.

A high level of interest in using the eye trackers has been well evidenced since the lab conception. The workshop satisfied the interest by providing theoretical and methodological material pertinent for using the Lab's two eye trackers. Specifically, Jacob, Anne and Martin discussed the fundamentals of eye tracking, the insights that can be generated from the methodology, how to best design an experiment and presented an overview of data analysis techniques. Noldus workshop 5 Nov 2014 Sales Consultant Sarah Balder

COBE Lab has several Noldus software suites that provide researchers with tools to tackle behavioural research. This includes the Observer XT — used to analyse observational data, and FaceReader — used for analysing facial expressions.

Sarah Balder from Noldus provided a practical guide to both software packages, in addition to explaining how Noldus software can be integrated with visual stimuli packages such as E-Prime, and implemented with eye trackers such as the Tobii T60 XL.

BIOPAC Systems Nordic workshop 6 Nov 2014

BIOPAC European Sales Executive Alex Dimov and JoR AB Regional Manager Kjell-Erik Andersson

The Lab proudly hosted the 2014 BIOPAC Nordic Workshop for Denmark. Attendees from around Denmark gathered to listen and be inspired by research tools developed by BIOPAC Systems. The workshop was led by Alex Dimov from BIOPAC Systems. and Kjell-Erik Andersson of JoR AB.

The workshop included a general introduction to BIOPAC Systems, before specialised tutorials and demonstrations of equipment available for researchers. Tutorials included wireless data acquisition, virtual reality, EEG, and the newly developed fNIR solution for prefrontal cortex imaging.



Jacob L. Orquin coordinated the eye tracking workshop.



Noldus FaceReader software allows facial expression analysis.



BIOPAC Systems held their annual Danish workshop at COBE Lab.

Associated Researcher meetings

Associated Researcher Meetings were conceptualised to enhance awareness of research being conducted outside of a researchers typical network, and thereby foster interdisciplinary communication and new research ideas. To do this, associated researchers are invited to present their work to fellow researchers.

In addition to enhancing communication between departments at AU. Associated Researcher meetings allow lab management to disseminate important news and information to attendees, showcase new equipment and answer any questions that should arise.

The table below presents details of the four associated researcher meetings that have taken place thus far.

Date	Speaker	Presentation title
28/03/2014	Marc Andersen	Exploring the sense of agency using eye tracking technology.
22/05/2014	Alexandra Kraus	The Swipe Approach-Avoidance Procedure (SWAAP).
22/08/2014	Erik Søndergaard Poulsen	The Cortrium C3 device.
31/10/2014	Michael Bang Petersen	Reaching out or pulling away? The role of stress and childhood environments in cooperation decisions.



Marc Andersen, Department of Culture and Society, showcased his own eye tracking equipment.



Professor Michael Bang Petersen, Department of Political Science and Government.

Researcher opinion

Two researchers share their experiences in conducting research at COBE Lab.

Alexandra Kraus

COBE Lab is a great achievement by itself and facilitates large-scale experimental research at AU. Alongside Anne Peschel, I was fortunate to run a study in COBE Lab, and within five days collected data of 125 students in individual sessions that took 45 minutes each.

The lab facilities are well thought-out and can be used in flexible ways. For instance in our study, we used the individual labs of Lab 2, and were able to arrange each room for our test purposes, and equip each room with computers, material, equipment etc. that we needed. Also the kitchen was a great help – we were able to store and prepare food samples for each session and due to the electronic ringing system installed in each individual room, we were able to control and follow participant progress. For instance, we knew who would need assistance. The location of COBE Lab is central and so participants can easily partake in a study at convenient times. We could recruit participants on campus.

Finally, COBE Lab management were a great help to us.

Panos Mitkidis

I study Cooperation. My research focuses on how motivation and ability alternate the ways people coordinate and compete and how this affects productivity and social cohesion.

I have used the lab to conduct a study on the effects of pain on morality and social attitudes. The placebo-controlled study combines experimental pain induction, surveys, implicit measures, hormonal samples, and psychological measures. The lab facilities allowed us to combine all the research strategies mentioned above in an efficient way and the lab management, welcoming and well trained, facilitated the data collection, allowing us to complete the study successfully.

Of special significance are two things:

- The participant pool: having previous experience, lack of participants is one of the major problems a researcher can face when running a study. COBE Lab has no such issues.
- Cooperation of lab management: both the lab manager and assistant manager supported us by providing every logistical convenience and next to that, their particular interest in research contributed to a mutual understanding of the experimental challenges.

COBE Lab is a highly recommended place for any researcher who wants to run studies pertaining to cognition and behaviour.



Alexandra Kraus recently completed her PhD at the Department of Business Administration.



Assistant Professor Panos Mitkidis, Department of Culture and Society.

Promotion

Promotion to students

Researchers who recruit via the participant pool are asked to help recruit more participants by distributing flyers, presenting the Lab in lectures, and reinforcing social media messages. The Lab is also advertised on monitors around the Fuglesangs Allé campus, in addition to flyers being distributed at Friday bars, canteens and additional areas of high student density. Local colleges outside of AU have also received promotional material.

Social media plays an important role in communicating study information to participants. As of late 2014, the Lab had more than 600 'likes' on Facebook. In autumn 2014, a professional animator produced a humorous video, describing what the Lab is about and what can be gained by participating in studies. The animation can be viewed online at the Lab homepage.

Promotion will continue in 2015 with articles in student magazines, as well as bookmarks and cards being distributed around Aarhus. Furthermore, promotion targeting educational institutions and the general public is planned, to achieve a greater diversity of participants.

Promotion to researchers

A bi-monthly newsletter communicates important Lab news and events, not only to Associated Researchers, but also to individuals who subscribe to the newsletter via the Lab website. Several departmental newsletters have featured the Lab, whilst lab management have given introductory presentations at other departments (e.g. Psychology and Behavioural Sciences).

Twitter is used as a tool to communicate news to the scientific community.



A video animation was produced during 2014.

COBE LAB NEWSLETTER

ISSUE #6. DEC 2014

ISSUE #4. JULY 2014

COBE LAB NEWSLETTER

Undated procedure for conducting researce COBE LAB NEWSLETTER ISSUE #5. SEPT 2014

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COGNITION AND BEHAVIOR LAB

ISSUE #3. APRIL 2014

Associated researcher August meeting Sona update Book now for September

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COBE LAB NEWSLETTER

Associated Researchers Meeting and First Celebration

On Friday August 22nd at 13:00 we will hold our third asso meeting. The date also marks our first birthday, and therefi present the inaugural COBE Lab researcher of the year awa

For more information click here

Sona Update

Sona Systems - the external company responsible for deve participant pool we use at COBE Lab, have recently updated interface. The new, modern look is designed to be easier to appealing for participants.

Click here for more information.

Online ethics certification Associated researchers meeting #2 @COBELAB

Promoting COBE LAB To New Students (Pa

Online ethics course

Commencing May 1st 2014, we require all researchers and research assistants to have an ethics certification to perform studies in the lab.



COBE Lab Affiliates

Associated Researchers

Alexander Koch Alexandra Kratschmer Alexandra Kraus Andreas Lieberoth Andreas Roepstorff Ann-Kristina Løkke Møller Anne Peschel Arndis Simonsen Carsten Bergenholtz Chi-Chih Chang Chris Frith Christina Gravert Christine Cuskley Dan Mønster Dan Nguyen Dorthe Døjbak Håkonsson Else-Marie Jegindø Emily Cochran Bech Emma von Essen Ethan Weed Heidi Christina Thysen Heiner Schumacher Helena Skyt Nielsen Hongyan Jenny Li

Jacob L. Orquin Jacob Sherson Jesper Sørensen Joachim Scholderer Johannes Kizach John McGraw Jos Jansen Joshua Brain Joshua Skewes Julia Nafziger Kim Mannemar Sønderskov Kristian Tylén Kristina Risom Jespersen Kristoffer L. Nielbo Lars Bach Lasse Laustsen Lene Aarøe Leonie Gerhards Lina Jacobsen Linda Greve Marc Andersen Martin Bagger Mathias Clasen Mette T. Damgaard

Michael Bang Petersen Morten Berg Jensen Morten Fenger Oana Vuculescu Panos Mitkidis Peter Kenney Polymeros Chrysochou Riccardo Fusaroli Ritwik Banerjee Rune Slothuus Ryuji Yamazaki Simon Calmar Andersen Simone Mueller Loose Søren Risløv Staugaard Søren Serritzlew Thomas Leeper Tor Eriksson Uffe Schjødt Uta Frith Vibeke Fuglsang Bliksted

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