# ATION

# Welcome

**We are happy to welcome you to**

**ActCon 2021**

**The Würzburg Summer Module Course on Action Control 2021**

**Oliver Herbort**

**Robert Wirth**

**Wilfried Kunde**

# General Information

**Zoom Link**
The conference will be held via Zoom:
https://uni-wuerzburg.zoom.us/j/94366218587?pwd=NE9wcUpMKzIGNUpCQlVBVi9Xa28wdz09
Meeting ID: 943 6621 8587
Password: 987553

The Zoom link can also be accessed via our online learning platform.

**Additional Course Material**
Additional course material will be made available on our online learning platform. You can log in using the credentials provided by the university of Würzburg:
https://wuecampus2.uni-wuerzburg.de/moodle/course/view.php?id=47416

**Time**
The time of the schedule is Central European Summer Times (UTC+2).

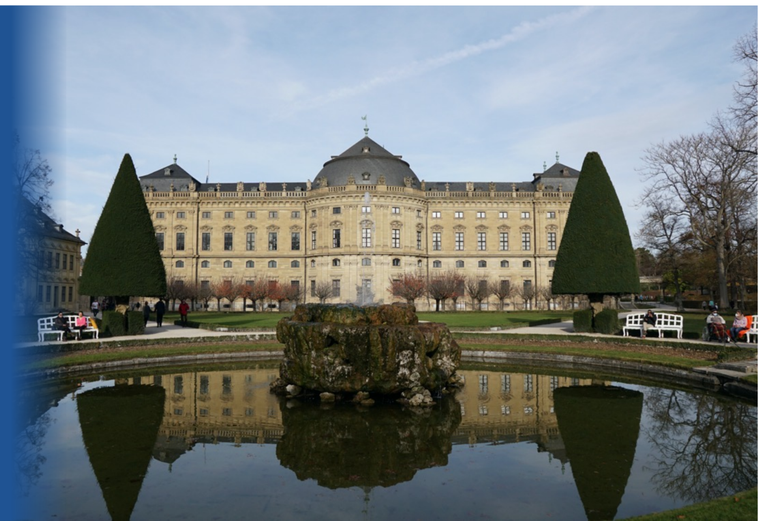
**Participant presentations**
Participants have the opportunity to present their current or planned research. We reserved a 30-minute time slot for each participant, which includes the presentation and its discussion. We recommend aiming for a 20-minute presentation, which would allow 10 minutes of discussion.

**Contact**
If you have any questions or suggestions, please contact:

Oliver Herbort
oliver.herbort@uni-wuerzburg.de

or

Robert Wirth
robert.wirth@uni-wuerzburg.de

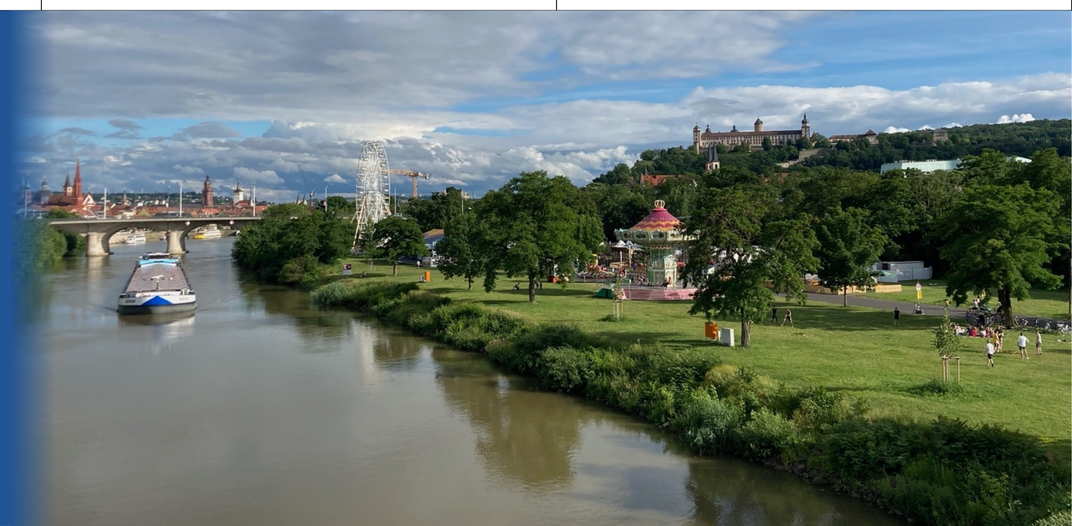


The palace of the prince-bishop of Würzburg was finished in 1744.
Nowadays, people attend concerts or stroll through the adjacent park.

# Program

| | Monday, 19th | Tuesday, 20th | Wednesday, 21th | Thurdsay, 22th |
|---|---|---|---|---|
| 9:00 – 10:00 | | Lecture: Errro-- Error porce-- Error processing | Lecture: Cognitive control of action in task switching: A tutorial | Lecture: Motor Control |
| 10:00 – 11:00 | Welcome Reception | | | |
| 11:15 – 12:00 | Hot Topic: Action control in social contexts | Participant Presentations I | Participant Presentations II | On the interplay between body and object perception |
| 12:00 – 12:45 | | | | |
| 12:45 – 13:15 | | | | A search for truth in dishonesty |
| 13:15 – 14:00 | break | | | |
| 14:00 – 16:00 | Workshop: Open Science | Workshop: EyeTracking | Workshop: The Unity3D game engine for psychological experiments: A tutorial | Workshop: Using continuous data in psychological research |
| 16:00 – 17:00 | | | | Farewell Session |
| from 18.00 | | Dinner Discussion: Online Experiments | Best Presentation Award + Dinner Discussion | |

Würzburg spans the banks of the Main River. People cycle alongside the river or meet there for barbeques.



# Monday

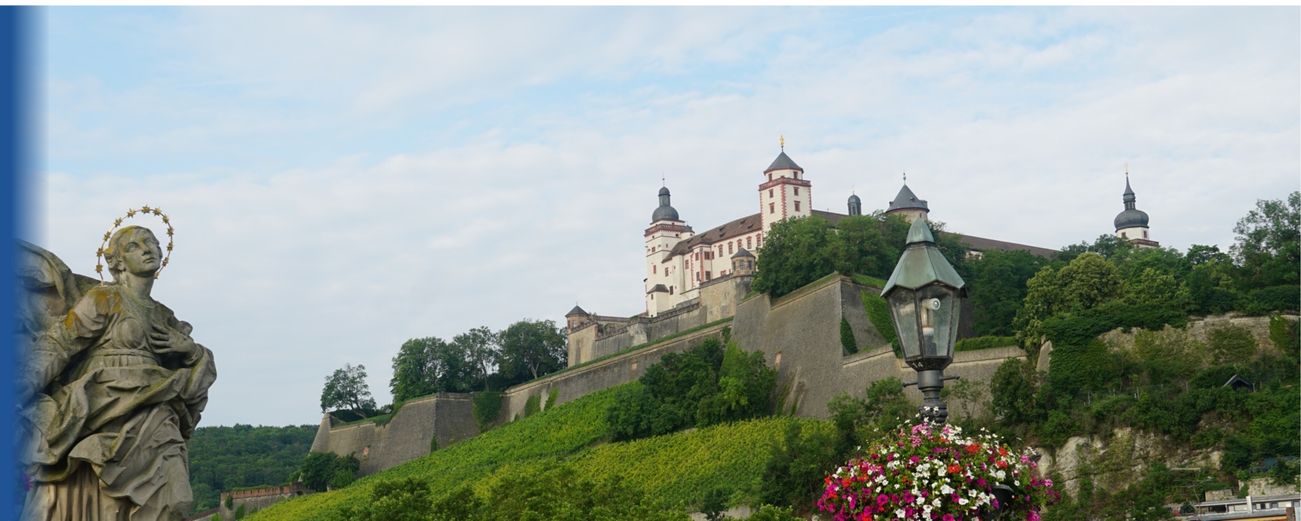
**10:00 – 11:00**
**Welcome Reception**

**11:15 – 13:15**
**Hot Topic: Action control in social context**
Prof. Dr. Wilfried Kunde

Humans store and retrieve motor actions by codes of the perceptible consequences that these actions consistently produce. What we do, however, has consequences not only in the inanimate environment, but at social partners around us. Sometimes such social consequences are intended, and sometimes they are not, but happen consistently, nevertheless. Do such social consequences constrain our action and perception so as consequences in the inanimate environment do? I will present some observations suggesting so, thereby supporting the idea of “socio-motor” action control. I will also discuss some peculiarities that should likely be taken into account when studying the impact of social compared to less social action feedback.

**14:00 – 17:00**
**Workshop: Practicing Open Science**
Dr. Katharina Schwarz

In this workshop, we will look at the problems in our current scientific system motivating the Open Science movement and how Open Science tries to counteract these issues. We will identify Open Science principles and determine how these principles can be implemented while still allowing for scientific flexibility. Content will span Open Science principles from best scientific practices to power analyses, preregistration, the publication of data and analysis files, and transparent communication of scientific results in published articles. Participants in this workshop will get a hands-on approach to Open Science with frank discussions regarding the necessity, practicality, and possible pitfalls of the implementation of Open Science principles.



The Fortress Marienberg offers the best look over the city of Würzburg and the river. The first castle on the hill was build around 1000 BC.

# Tuesday Morning

**9:00 – 11:00**
**Lecture: Errro-- Error porce-- Error processing**

Dr. Roland Pfister

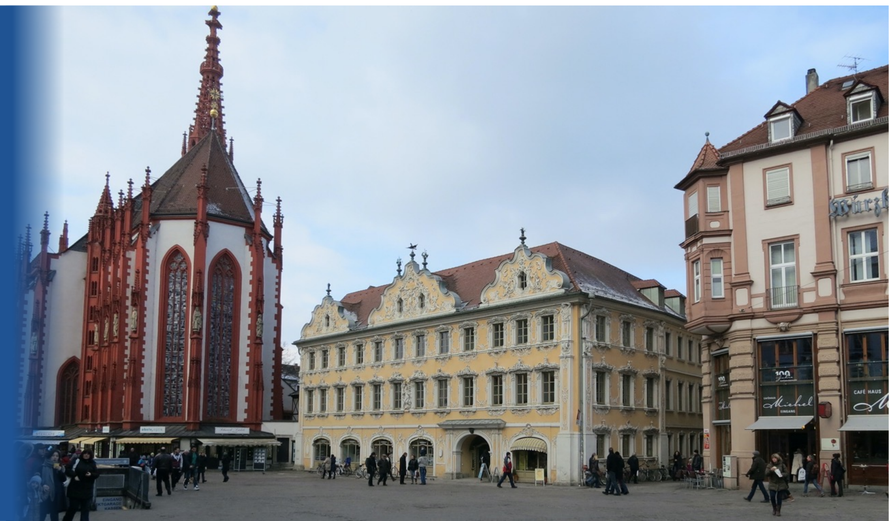
Human error processing has been a hot topic in psychology and neuroscience for decades. Following a selective look at classic findings from this field – especially measures such as post-error slowing and the error-related negativity –, we will discuss recent trends and fresh observations that shed new light on how and when performance monitoring leads to cognitive and behavioral consequences. This includes the representation of erroneous action episodes and immediate cancellation of ongoing errors.

**11:15 – 11:45**
**The role of action-effect congruency in motor adaptation**
Adrienn Réka Oláh

**11:45 – 12:15**
**Are free-choice biases to avoid competition between action plans related to working memory Capacity?**
Benjamin Richardson

**12:15 – 12:45**
**The universal grasping: Animals and plants**
Silvia Guerra

The marketplace is surrounded by landmarks such as the Marienkapelle (a church) and the Falkenhaus (now a library).



# Tuesday Afternoon

**14:00 – 17:00**
**Workshop: Eye Tracking: The measurement of oculomotor action**

Prof. Dr. Lynn Huestegge

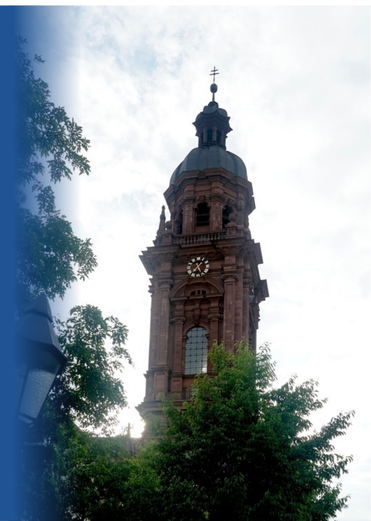
While eye tracking is usually only considered an index of attentional (input) processes, any eye movement at the same time also represents an action (i.e., output) that needs to be controlled. This renders eye movements and ideal playground for studying the close links between perception and action domains in cognitive sciences. In this workshop, we will cover some basics of oculomotor control. In addition, we will highlight how eye movements can be recorded in the lab, and what to look out for when setting up an eye tracking study. Finally, we will present examples on how action control processes can be addressed via eye tracking by focusing on commonalities, differences, and interactions between oculomotor action and other (e.g., manual, vocal) action domains.

**18:00 – open end**
**Dinner Discussion: Online Experiments**

Host: PD Dr. Oliver Herbort

This informal zoom meeting is planned as a social get together in which participants can discuss current issues and ideas together with presenters. On Tuesday, we want to begin with our experiences with online experiments and then turn to other topics. Feel free to bring your dinner.

The Neubaukirche has been built as part of the University of Würzburg after ist re-foundation in 1582 and combines elements of gothic, renainssance and baroque architecture. It is the university‘s assembly hall and used for celebrations and concerts.



# Wednesday Morning

**9:00 – 11:00**
**Lecture: Cognitive control of action in task switching: A tutorial**

Iring Koch, Institute of Psychology, RWTH Aachen University, Aachen, Germany

In my presentation, I will start with introducing the general question about the factors that determine human behavior and action, drawing on the distinction between exogenous, stimulus-based factors and endogenous, intention-based factors. Then I will focus on intention-based factors and describe the concepts of cognitive control and "task set". Task-set control can be examined using various empirical approaches. In the main part of my presentation, I will focus on research on task-set switching. To this end, I will present a tutorial on task-switching methodology, the main empirical findings, and the major theoretical variables and constructs. I will also discuss extensions of task switching to the domain of bilingual language selection, which represents a particularly interesting case of action control.

Recommended readings:

Koch, I., Poljac, E., Müller, H., & Kiesel, A. (2018). Cognitive structure, flexibility, and plasticity in human multitasking – An integrative review of dual-task and task-switching research. Psychological Bulletin, 144, 557-583. http://dx.doi.org/10.1037/bul0000144

Koch, I., Gade, M., Schuch, S., & Philipp, A. M. (2010). The role of inhibition in task switching: A review. Psychonomic Bulletin & Review, 17, 1-14.

**11:15 – 11:45**
**Creative combination of dance moves with deepmimetic and active inference**
Riccardo Proietti

**11:45 – 12:15**
**Dynamic action-effect related motor adaptation**
Sámuel Varga

**12:15 – 12:45**
**The antecedents and consequences of economic inequality between social groups**
Finn Lannon

Würzburg is surrounded by vineyards – such as the Würzburger Stein. It is the largest plot in Germany.

# Wednesday Afternoon

**14:00 – 17:00**
**Workshop: The Unity3D game engine for psychological experiments: A tutorial**

PD Dr. Oliver Herbort, Lisa-Marie Krause, M.Sc.

Game engines are a useful tool for developing psychological experiments. They offer a high level of flexibility, allow for complex participant interactions, provide good performance especially when using advanced graphics, 3D environments, or virtual reality. On the other hand, they typically lack features of more traditional experimental software packages, such as organization of lists and millisecond timing. In this tutorial, we'll provide a basic introduction to the Unity3D editor and scripting with C#. The Unity3D editor is free for personal use.
If you want to get a hand on experience, please download the Unity3D editor and Microsoft Visual Studio before the session (https://store.unity.com/download)

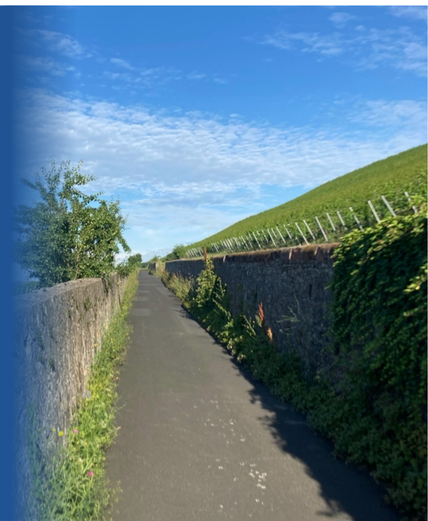
**18:00 – 18:15**
**Best presentation awards**

Host: PD Dr. Oliver Herbort

**18:15 – open end**
**Dinner discussion: How to publish your research**

Host: Prof. Dr. Wilfried Kunde

This informal zoom meeting is planned as a social get together in which participants can discuss current issues and ideas together with presenters. On Wednesday, we want to begin to discuss the successful dissemination of your research in journals and conferences. Feel free to bring your dinner.



If you want to get away from the city, you can hike through the vineyards. A bottle of the 1540 vintage of this hill is still kept in one of Würzburg's wine estates.

# Thursday Morning

**9:00 – 11:00**
**Lecture: Motor Control**

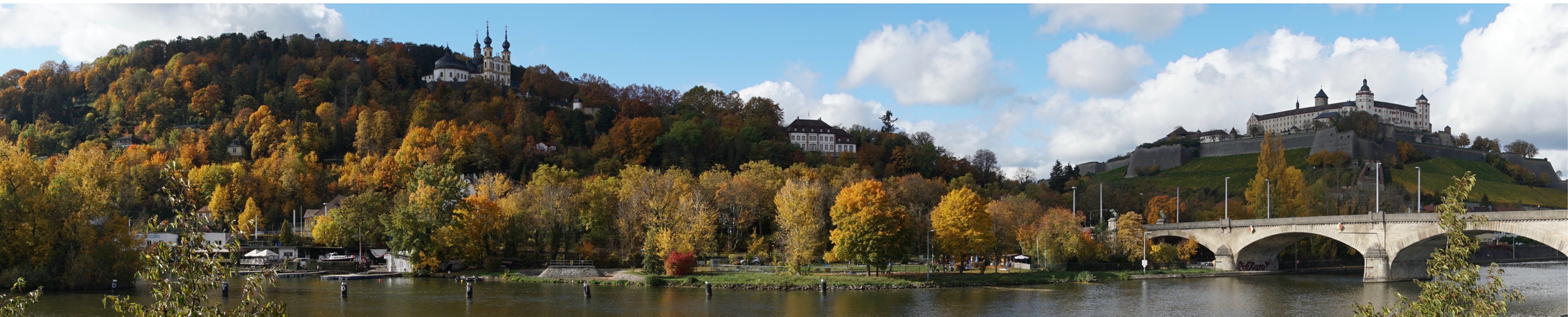
PD Dr. Oliver Herbort

Every day, we carry out countless apparently simple actions, such as grasping objects or using our smartphones. However, on closer inspection, even the simplest of these actions turn out to be rather complex tasks. The first part of the talk will outline some of the intricate processes involved in planning and controlling everyday actions with astonishing efficiency – even if we're often unaware of them. The second part will discern one process in more detail: the anticipatory selection of actions. For example, when we grasp an object, the anticipated use of the object already shapes the grasping movement (the so-called "end-state comfort effect"). It will be discussed how both habitual and goal-directed processes contribute to adapting current actions to anticipated demands of future actions, which ultimately allows us to move more efficiently and extent our action capabilities.

**11:15 – 12:45**
**Hot Topic Session: On the interplay between body and object perception**

Dr. Wladimir Kirsch

The perception of external objects is commonly assumed to be determined by exteroceptive information and is usually studied independently from the perception of internal body states. However, body-related signals can affects the way we perceive objects in the environment and vice versa, object-related signals can affect body perception under certain conditions. This talk will trace the origin of these effects and delineate how object- and body-related signals interact in the perception of environment and of own body. The focus will be on goal-directed hand movements examined in our lab in the last decade under diverse context conditions.



# Thursday Afternoon

**12:45 – 13:15**
**Hot Topic Session: A search for truth in dishonesty**

Dr. Anna Foerster

Although lying is integral to the repertoire of human actions, honest behavior predominates. Cognitive theories reflect this predominance in assuming an initial representation of truthful responses that agents must overcome to lie. Evidence from paradigms where researchers prompt participants to respond dishonestly and honestly support this assumption although practice, frequent and recent dishonest responding, and false alibis can facilitate dishonest responses. In contrast, when participants can commit unsolicited lies for their own advantage, lies seem to be the standard response whereas honest actions require effort. The different methodological approaches of both research streams impede an empirical and theoretical integration. Progress in the field thus hinges on the development of innovative paradigms that allow researchers to investigate unsolicited, unprepared, and motivated lies while still being able to identify honest and dishonest actions via hidden technology.

**14:00 – 16:00**
**Workshop: Using continuous data in psychological research**

Dr. Robert Wirth

We will discuss how we can use continuous data in psychological research by looking at some factors we must consider when implementing such a solution. Together, we may either discuss how reseachers can implement this into their own research or give a short demonstration on how to handle continuous data. This is neither a hands-on workshop nor a lecture, but rather a discussion round which should be based on the participants' input.

**16:00 – 16:30**
**Farewell Session**