HOCHSCHULE FURTWANGEN UNIVERSITY | HFU

Software Project in Business Information Systems

Lecture 1:

Introduction

07.10.

Stefan Noll

Winter Semester 2025/26

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Your thesis

Students who like to perform their thesis next summer semester

- need to find a thesis research topic NOW, best finish this before mid this semester (December)
  and then look for a supervisor at our faculty,
  therefore contact companies NOW, if you wish to do the thesis there, which is recommended
- if the thesis will be at a company AND the company request an NDA (Non-disclosure agreement, confidentially agreement,
  (German: “Geheimhaltungsvereinbarung”),
  HFU can sign ONLY its own document from felix
- look at „01_Wegweiser Fakultät I: Studiengänge Wirtschaftsinformatik“ in felix
  and read carefully infos for thesis registration and process!!!
  (some students did not in the past)
  https://felix.hs-furtwangen.de/auth/RepositoryEntry/786453/CourseNode/109462054603399
- The thesis starts in summer semester 2026 at March 1st (!)
- if you are late, wished supervisors might be booked already
  by other students and you have to find one other
  which might be difficult in January/February 2026!

Brief Characteristics

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Basic / Content:

- The module is mandatory in the study program IBS (6th semester)..
- Projects are to be worked on, in which normally for external clients (companies) in a real operating environment usable small software prototypes/products are developed.
- With regard to the platform technologies, programming languages, etc. to be used, there are no restrictions. Here the "customer" decides if necessary on the basis of its conditions and/or necessities. However, the project work should contain a decisive part of software development - in whatever form.

Acquiring project offers

- The learning effect of the module depends decisively on the projects having a (preferably external) client with a serious interest in using the developed software / application / prototype / portal
  - no "tiny projects"!
- The customer is expected to participate in the determination of the requirements and the preparation of the application to an appropriate extent.
  (e.g. interviews, requirements specification review, pilot test etc.).
- Course participants are strongly encouraged to independently acquire suitable project offers from external clients ("customers"). Please use your contacts among friends, acquaintances or from your internship semester.
- You are also welcome to contact me if you have any queries or need help!

Lectures & Organisation

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- The available project offers will be presented at the first joint semester meeting (today !).
- In the next week (2nd lecture), it is jointly decided
  which project assignments will be worked on and
  who will work in which project team and if possible,
  the **kickoff** for the projects takes place
- In the (optional) 3rd lecture, the **kickoff** for the projects takes place (if not in second week)

  After kick-off each project team continue **work independently**.
  A few joint milestone and lecture dates are still to be announced.
  Supervisor Prof. will be assigned and **supervise** the teams individually.
  Supervisors might be i.e. Prof. Knahl, Prof. Heindl, Prof. Albrecht or Prof. Noll.
- In the following the teams meet with their supervisor on agreed dates
- The 4th lecture is at the end of the semester to organise the testing and the joint final discussion of all projects.

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Acceptance criteria (must) for a successful project:

- Professional project management (involves the whole team).
- The work result is usable for operational / commercial use.
- The software product is completely finished, tested and delivered or installed at the "customer".
- The agreed scope of services and completion date (see specifications) have been met.

Project Key Data

- Duration: 4 months (from start of requirements analysis to product handover)
  = winter semester: early October to mid February
  = summer semester: mid March to mid July

- Budget (workload/total): approx. 700 - 1100 hours
  = approx. 5 - 7 "person-months
  = approx. 180 hours per person / student
  incl. lectures & meeting time

- Team size: 4 - 6 persons typical
  deviations are possible depending on the project

Overall organisation of all projects: Stefan Noll

Criteria and conditions for suitable project assignments

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- A professional or operational use of the created software is intended.
- Mentioned acceptance criteria or quality goals must be achievable in any case; if necessary, the functional scope of the software must be limited accordingly.
- In other words: no "semi-finished products",
  instead, if necessary, an operational "version 1" with limited functionality and the option of further development.
- The necessary support and supply by the client is guaranteed, i.e: Availability for interviews and meetings in the course of the requirements analysis, presence at the requirements specification review, provision of test data and test systems if necessary, support during installation and acceptance testing if necessary.

Project examples (project of IBS courses)

Successfully completed projects in previous semesters:

- Career Counseling: webapp that provides students and professionals with valuable insights and information about career paths, job positions and required skills (1.0)
- Real Estate Price Prediction Website (2.0)
- Potato Disease Prediction Web App (LeafTech): LeafTech is an easy-to-use web application developed to assist farmers identifying diseases affecting their potato crops. It uses deep learning techniques to predict potential diseases by analyzing uploaded images of potato plant leaves. Partner: SAL, Nigeria. (1.0)
- IBS app for IBS students, Partner/Client: Prof. Rawe & IBS Students 2 projects (1.0 & 2.7)
- Digitalized Project Documents Control and Canagement (1.7)
- DOMM Revolutionizing Meeting Documentation for Daimler Truck AG (1.0)
- Kundula Villas Nazeen (4.0) / Internet Shop Site (2.7)
- Theratime project as a solution to streamlining and helping client data and appointment data management (1.3)
- Nets For the Little Ones is a mobileeducational platform designed to simplify ITnetworking concepts for beginners andstudents.
- IBS Warehouse Management System (1.3)

Project examples (projects of „german WIB“ courses)

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Successfully completed projects in the last semesters included:

- Issue management system for an internationally active medium-sized company
- Online survey system for service quality in a large corporation
- Online training management for a Microsoft training company
- Customer/vendor building blocks for an international culture platform
- Tool for IT facility management in an insurance company
- Quotation, order management and web presence for a speciality clothing supplier
- System for course management and quality control in a fitness studio
- Management of online order requests for the library at Furtwangen University of Applied Sciences
- Order and sales management for an optician's shop incl. hardware and network installation
- Complex online survey management system for an IT consulting firm
- Framework of a workflow management system for medical practices
- Fleet management for a freight forwarding company
- Quality monitoring system for an air freight carrier
- Tour and fleet management for a parcel delivery company

Project examples (projects of WIB courses)

Successfully completed projects in the last semesters included:

- Creation of a holistic project management and controlling tool for the management and documentation of deployed project resources for KPMG
- Realisation of a connection with an FTP server by means of a web UI, for secure exchange of files for IMC AG Freiburg
- Connection of procurement platforms to the ERP system for RENA Technologies GmbH Gütenbach
- Event management tool for NTT Data München
- Digital recording and planning of on-call duties for Claranet GmbH Frankfurt
- Mobile Work Calendar for Haufe Lexware GmbH Freiburg
- Time management tool for DRK Rettungsdienst (Rescue Service) Freiburg GmbH
- Basic building block for the development of a platform for communication between hospitals and service providers in the field of medical care for DocHub München
- Currency calculator with daily updated rates in the form of an Atlassian app, which will later be freely available to everyone in the Atlassian Store for Catworx Zürich
- Quicktest GUI & Evaluation Information on updates to the control unit for Daimler AG Immendingen

Project examples (projects of WIB courses)

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Successfully completed projects in the last semesters included:

- Control of an exhaust gas measuring device via tablet / smartphone via Bluetooth
- Creation of a website for truck driver support group
- WebShop and WebPresence for horsevideos
- Development of components for the content management system Joomla
- WebShop and WebPresence for television technology company
- Development of a payment shop
- Administration system for feature request management
- Online portal for services from students for citizens
- Licence management system for Bosch
- Cewe partner programme web system
- Management of telesales campaigns via database-based system
- Realisation of a landing page software module
- Information system on mobile devices for wood industry

Project examples (projects of WIB courses)

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Successfully completed projects in the last semesters included:

- Software system for recoding surgical equipment
- HFU Shop for promotional items
- Android app for HFU web applications
- App for project management system
- Software tool for company suggestion system
- Management information system for Siedle
- Interface / data monitoring system for Daimler AG
- Load carrier management system with mobile recording devices
- Facebook plug-in for shop system
- Database management tool for DAAD
- GUI for measurement data acquisition at Bosch
- Online project planning tool T-card
- Creation of a database with web application for lunch offers of restaurants
- Development of an in-app concept for a company tool

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The process model is - corresponding to a mini-project -

greatly simplified

but still corresponds in structure and scope of work

a realistic "RDI iteration".

- R: Requirements analysis
  milestone: requirements specification review
- D: Design of the SW architecture (partly parallel to R)
  milestone: architecture review
- I: Implementation and system test
  final milestone: product presentation & handover to client

"General terms and conditions 1/2"

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- Fees or donations from the university are typically not requested
- Costs arising from special requirements of the application to be developed
  i.e. software licences, training, travel, etc.,
  should be payed by the client and,
  if necessary, settled directly with the students involved.
- The university is not liable for errors in the software products created or any consequential damage arising therefrom.
- The university cannot assume any hotline services or maintenance obligations for the software products created. If desired, corresponding agreements can be made with the participating students on a private basis.

"General terms and conditions 2/2"

- Confidentiality agreements on the part of the university are difficult
  because there is no template for projects and
  legally only the chancellor can sign legally as a representative of the HFU
  (not the supervising professor, but ...)
- Transfer of rights on the part of the university is difficult,
  as the HFU must then demand standard market consideration.
- In special cases (very rare: direct productive use of the result is intended),
  a project contract can be made with the university, but this is not mandatory.
  Coordination with the project team, client and supervising professor must take place
  before the project begins (kick-off).

Lecture Dates for the Start of the Project:

(compulsory attendance - please keep free!)

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Tuesday, 07.10.2025 14:30 – 15:30 presence, hybrid

- Introduction to the course / organizational matters
- *first presentation of the project offers by the students* ***"Project marketplace"*** *-*
  please bring & have ready project proposals incl. presentation material (e.g. Powerpoint)
- Lecture / Basics (I)

Tuesday, 14.10.2025 14:00 – 15:30 presence, hybrid

- *Presentation of further project offers, if applicable*
- Lecture / Basics (II)
- If necessary, individual consultations per team on project organization and project start-up

Tuesday, 21.10.2025 14:00 – 15:30 presence

- Determination of the projects, assignment of all students to the project teams
- Lecture / Basics (III)
- ***Project kickoffs*** *= short presentations by all project teams!*
- Individual consultations for teams / as needed

Project marketplace

- Proposals from students
- Proposals from external partners
- Further ideas

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Break

… once again the dates for the next few weeks (back to slide 17)

… continuing with the dates in the semester

Regular appointments during the semester project

- After October 21st, each project will be assigned its own supervisor/professor.
- There should be a joint status meeting with the supervising professor about every 14 days.
- The respective date for these meetings is agreed upon by the team with the supervising professor.
  The initiative for this comes from the team.

Milestone and other deadlines in the course of the project 1/3

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In the further course of the project, there are the following milestone timeframes and other key dates:

- **Review of Requirements Specification:**

  Appointment in week 44 **(from 27.10...)**

  - Presence of the entire team & the client (if possible) desired!

  - The exact date is to be arranged at least one week in advance by the project team.

- **Review of the architectural design (Software modules / Client-Server):**

  Appointment in week 46 **(from 10.11...)**

  - Presence of project managers & SW developers required!

  - The exact date is to be arranged at least one week in advance by the project team.

Milestone and other deadlines in the course of the project 2/3

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Review of Requirements Specification:

Appointment week 44

Review of the architectural design (Software modules / Client-Server):

Appointment week 46

- **Interim report / Implementation:**

Appointment in week 50 **(from 08.12...)** mandatory

- "proof of concept" for the essential functions or use cases with live demo
- If necessary: modification of the target specification
- Presence of the entire team desired!
- The exact date is to be arranged at least one week in advance by the project team.

Milestone and other deadlines in the course of the project 3/3

Review of Requirements Specification:

Appointment week 44

Review of the architectural design (Software modules / Client-Server):

Appointment week 46

Interim report / Implementation:

Appointment week 50

- **Lecture / Organization / final Discussion: Testing Software and Usability Tuesday, 13.01.2026 presence, hybrid**
  - Participation recommended for all!
- **Software / Usability Test Period**
  from **19.01.2026**: Prototype for testing must be ready
- **End of development: finished System and Completion of all Documents / Handover of finished SW products / Project presentation: Exam period of HFU 26.01. – 20.02.2026**
  - Attention: Presence of the entire team & the client (if possible) desired!
  - The exact date is to be arranged at least one week in advance by the project team.

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Design / Concept
Click-Dummy & Prototyping

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Axure RP 10

- Market leader in Click-Dummy, Wireframe and Prototyping

- Generate fast:
  - Klick-Dummys
  - Prototypes
  - Wireframes

- For software e.g.:
- Website
- Apps
- selected Processes (z.B. Purchase process Web-Shop)

Students get free licences

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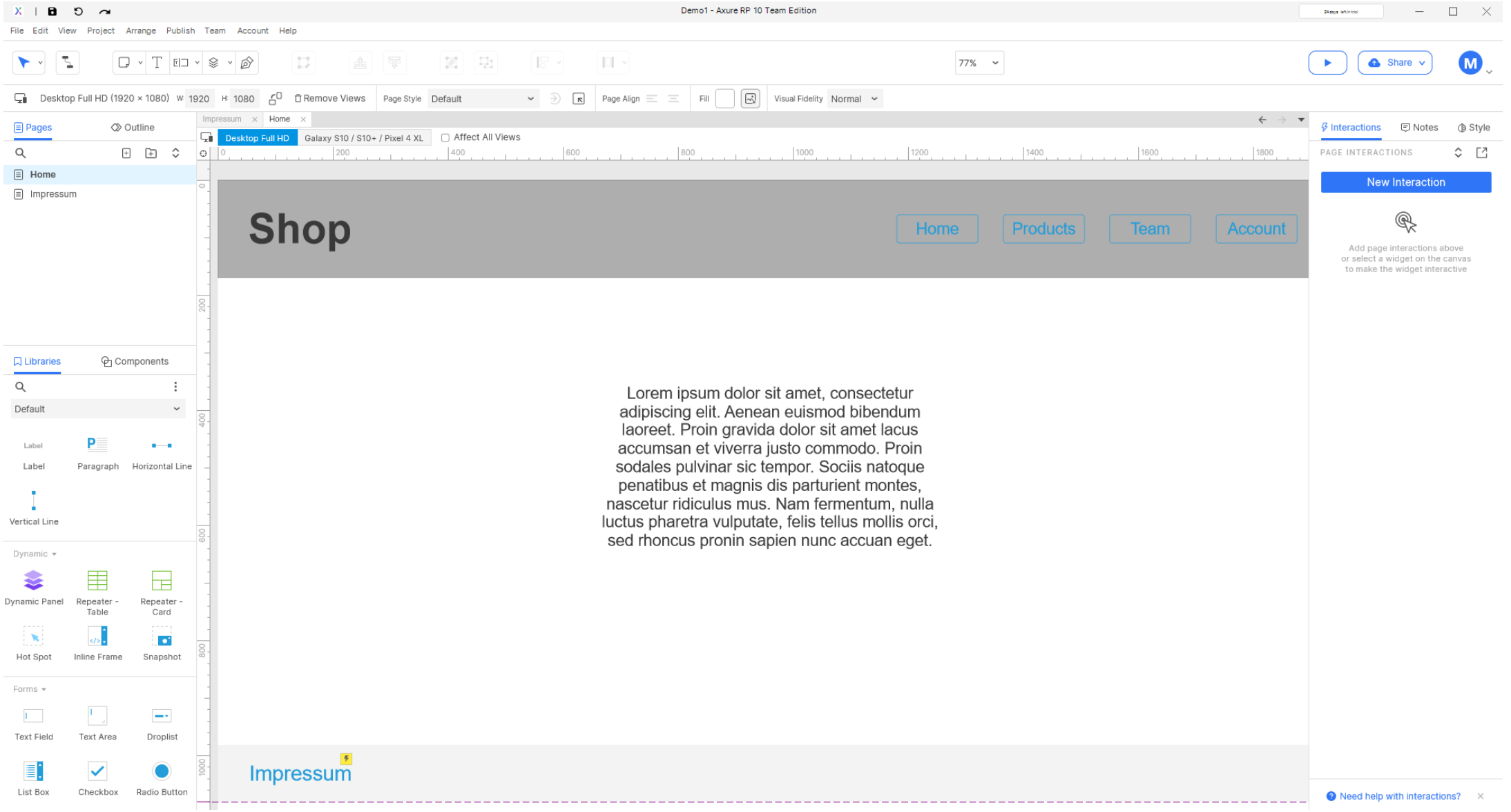
Axure RP 10



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Usability Lab Tests at end of Project

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Usability Lab

Observation room

Test room

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Eye-Tracking

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Eye-Tracking

- Record eye movement
- Detailed knowledge of user behavior with the software/website
- Gaining new insights into the design of the software/website
- Planning test procedures
- Fine-tuning of test subject properties
- Many metrics e.g.:
  - TOI = Time of Interest (z.B.:Sudden video embedding in website)
  - AOI = Area of Interest (z.B.: How much does a picture distract from the text)
  - Heatmaps (z.B.: Where does the user stay the longest)
  - Saccade (z.B.: Course of the eye movement)
- Export all metrics

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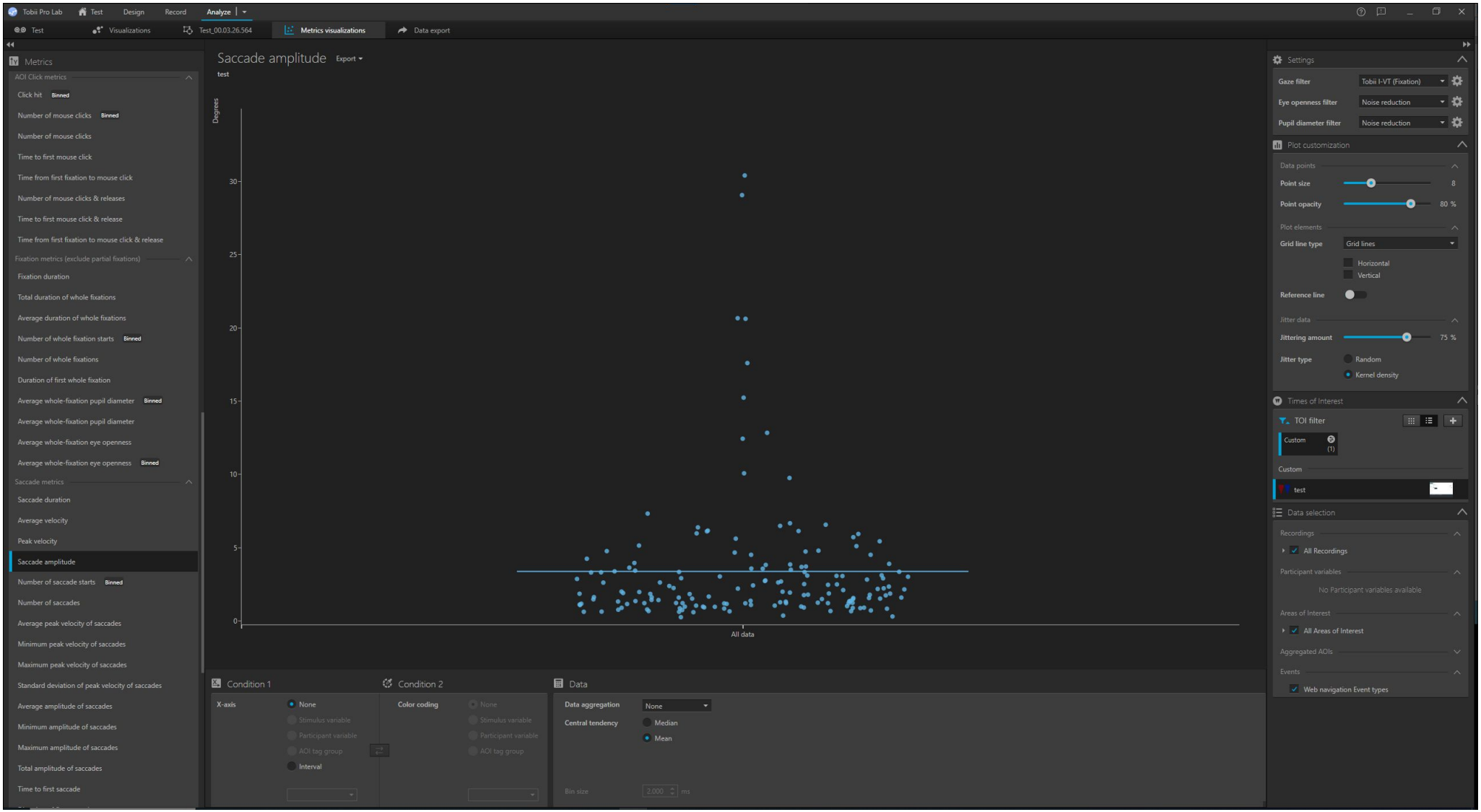
Visualize Metrics



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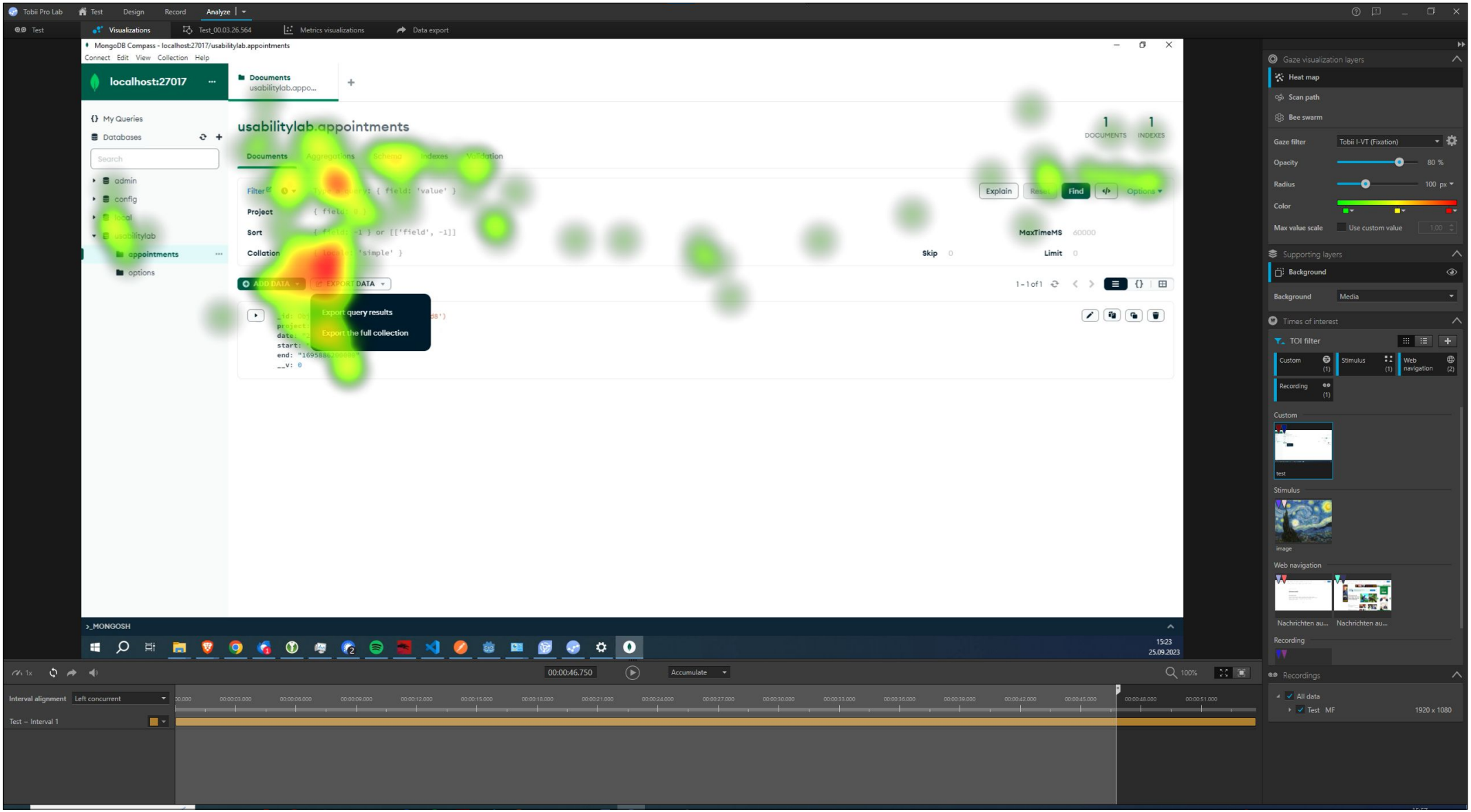
Heatmap



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Saccades