



ANGULAR  
**ARCHITECTS**  
INSIDE KNOWLEDGE

# Angular Performance Optimization

Hosted by Alex Thalhammer

# About me ...



ANGULAR  
**ARCHITECTS**  
INSIDE KNOWLEDGE



SOFTWARE  
**ARCHITECT**

# Hi, it's me → LX T

- **Alex Thalhammer** from Graz, Austria (since 1983)
  - *Angular Software Tree GmbH* (since 2019)
- WebDev for 20+ years (I've come a long way baby)
- WordPress Dev (Web, PHP & jQuery, 2011 – 2017)
- **Angular Dev** (Web, TS, Rx since 2017 - NG 4.0.0 😊)
- **Angular Coach & Consultant** (since 2020)
  - Member of *Angular Architects*

<https://www.angulararchitects.io>



# Tell us sth about yourself

- Hi, my name is ...
- I currently work on ...
- A good performance is ...
- My goal for the next 2 days is ...



ANGULAR  
**ARCHITECTS**  
INSIDE KNOWLEDGE



SOFTWARE  
**ARCHITECT**

# Pollings

- OS
  - Mobile OS?
- Browser
- IntelliJ/WebStorm vs VS Code
- npm vs yarn
- ?



ANGULAR  
**ARCHITECTS**  
INSIDE KNOWLEDGE



SOFTWARE  
**ARCHITECT**

# My Goals

Every participant should

- understand the ***importance*** of good performance
- know how to ***measure*** the performance
- know how to ***tweak*** the performance
- become a ***performance evangelist*** in her/his project/team/company



ANGULAR  
ARCHITECTS  
INSIDE KNOWLEDGE



SOFTWARE  
ARCHITECT

# We work together I

- Don't hesitate to interrupt me at **ANY TIME**
  - Questions
  - Or remarks
- Somebody else might have the same question
  - Be a hero and ask it
    - Seriously, it makes the workshop better for all of us 😊



ANGULAR  
ARCHITECTS  
INSIDE KNOWLEDGE



SOFTWARE  
ARCHITECT

# We work together II

- Remote: Please turn your camera on ***ALL THE TIME***
  - Necessary for me to get your feedback
  - This will also improve the workshop for all 😊



ANGULAR  
**ARCHITECTS**  
INSIDE KNOWLEDGE



SOFTWARE  
**ARCHITECT**



# Timing (approximately)

- 09:00 – 10:30
- 10:50 – 12:20
- 1hr lunch break
- 13:20 – 14:50
- 15:10 – 16:40
- Including expected delay we will end at 17:00 latest



ANGULAR  
**ARCHITECTS**  
INSIDE KNOWLEDGE



SOFTWARE  
**ARCHITECT**

# What is Performance?

- What would you say?
- **Web performance** refers to the speed in which web pages are downloaded and displayed on the user's web browser. **Web performance optimization (WPO)**, or **website optimization** is the field of knowledge about increasing web performance.  
-- [https://en.wikipedia.org/wiki/Web\\_performance](https://en.wikipedia.org/wiki/Web_performance)



ANGULAR  
ARCHITECTS  
INSIDE KNOWLEDGE



SOFTWARE  
ARCHITECT

# Why Performance Optimization?

- According to *Facebook*, when people have to wait too long for a webpage to load, they're more likely to abandon the page all together.
- According to *Google*, 40% of visitors will abandon a website if it takes longer than 3 seconds to load
- According to *Amazon*, 0.1s less loading time results in around 1% more sales



ANGULAR  
ARCHITECTS  
INSIDE KNOWLEDGE



SOFTWARE  
ARCHITECT

# Angular Performance Optimization

We distinguish between

- Initial load performance (classical web performance)
- Runtime performance (during usage, e.g. scrolling frame rate)

# Didactics

Inputs

Discussion

Labs

Q&A

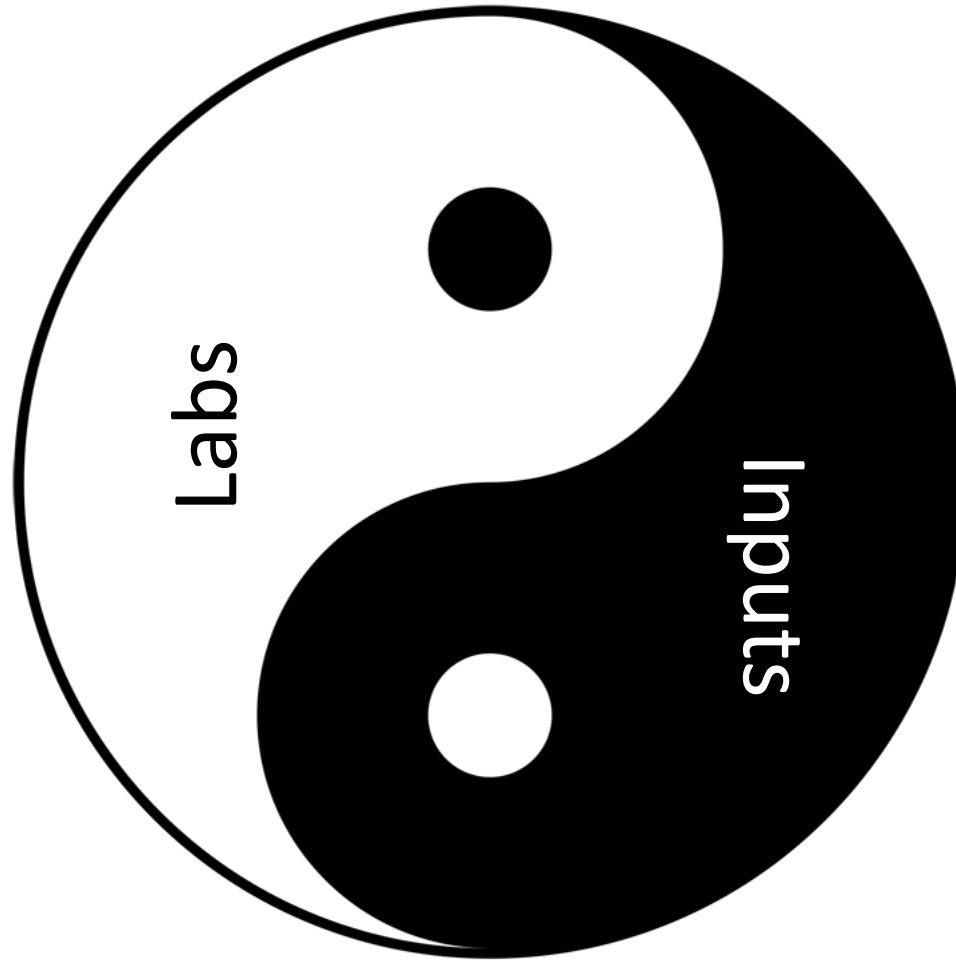


ANGULAR  
**ARCHITECTS**  
INSIDE KNOWLEDGE



SOFTWARE  
**ARCHITECT**

# Didactics



# Topics

Intro, UAAO-  
Framework &  
Audit Tools

Runtime  
Performance

Initial Load  
Performance

Further Topics  
& Future NG

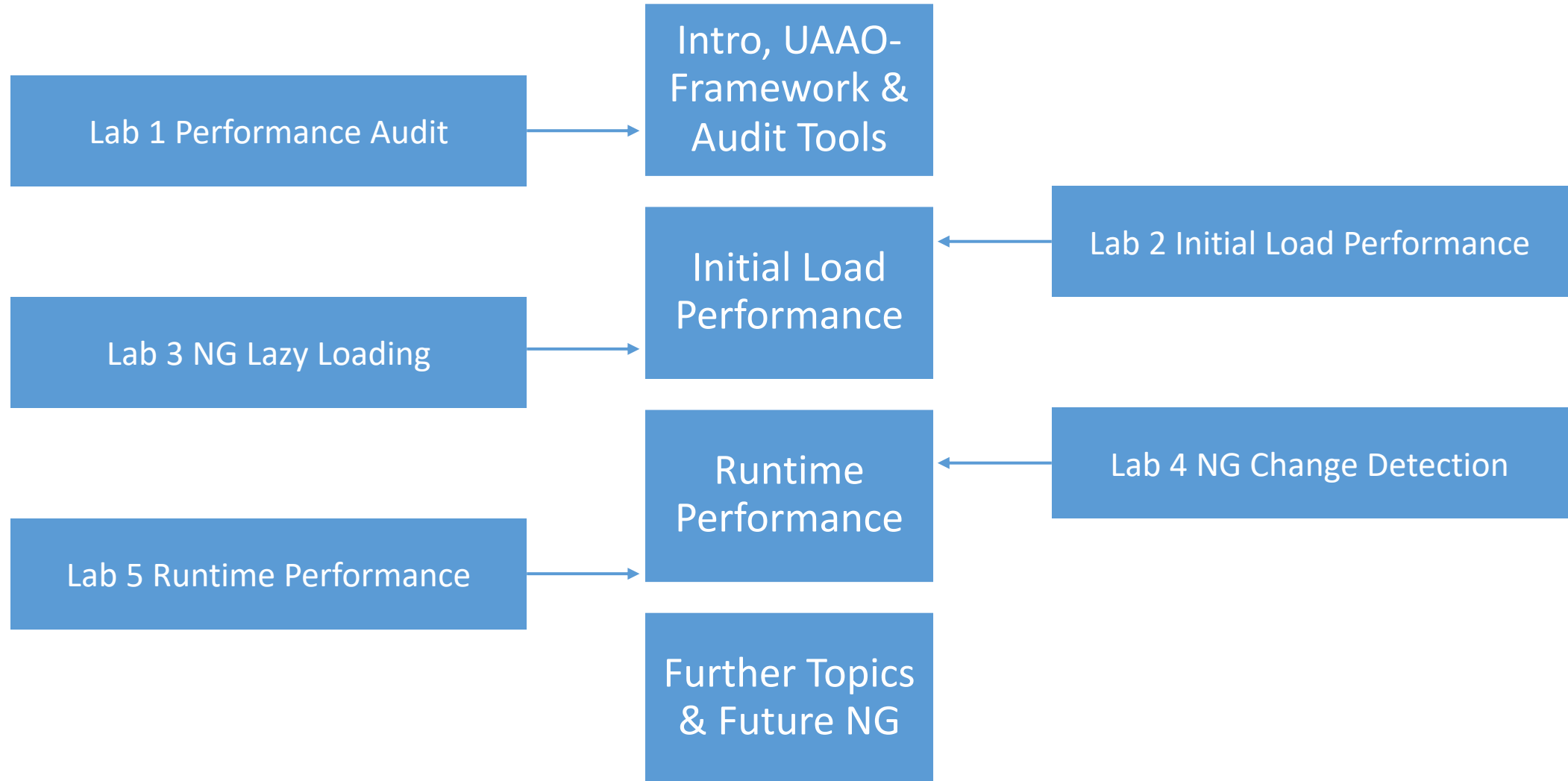


ANGULAR  
**ARCHITECTS**  
INSIDE KNOWLEDGE



SOFTWARE  
**ARCHITECT**

# Labs



ANGULAR  
**ARCHITECTS**  
INSIDE KNOWLEDGE



SOFTWARE  
**ARCHITECT**



# Ready for Takeoff!

- What are your questions?

# Setup for Labs

- NodeJS (latest version 14.20.x, 16.13.x or 18.10.x)
- IDE: VS Code (free) or IntelliJ WebStorm (not free, but better)
  - IF 1. I'd be employed & 2. my employer would not pay for WebStorm license
  - THEN I'd buy it myself (~ 190€ / year, free for students)
  - BUT that's just *my* opinion, most other *Angular Architects* use VS Code
- Chrome (or Chromium based alternative)
  - other browsers are okay for private matters 😊

# Recommendations

- Use prettier
  - especially for .ts files
- Use ESLint
  - in your IDE of choice and/or from terminal
- Use Git
  - we recommend to at least commit after every lab
  - easier switching back and forth with my solution

# Starter Kit

- Incl. Slides
- And Labs (exercises)
- Clone or download from <https://github.com/L-X-T/ng-performance>



ANGULAR  
ARCHITECTS  
INSIDE KNOWLEDGE



SOFTWARE  
ARCHITECT

# Outline

1. UAAO Framework (**U**nderstand)
2. Audit Tools for Measurement (**A**udit)
3. Initial Load Performance (**A**nalyze & **O**ptimize)
4. Runtime Performance (**A**nalyze & **O**ptimize)
5. Further Topics & Feedback



ANGULAR  
**ARCHITECTS**  
INSIDE KNOWLEDGE



SOFTWARE  
**ARCHITECT**