

ANGULAR
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Angular Performance Optimization

Alexander Thalhammer | @LX_T

About me





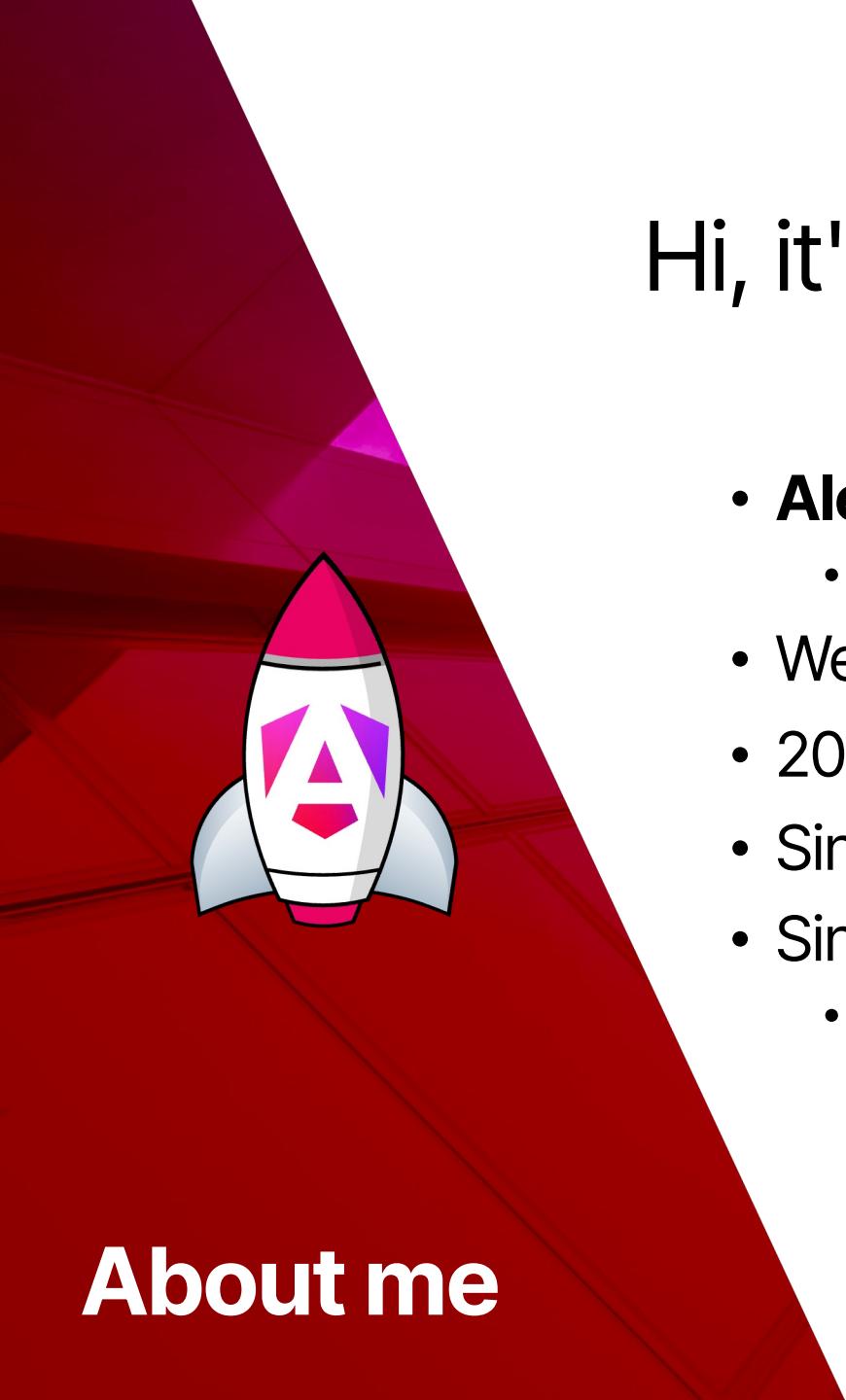
About me ...





... my office





Hi, it's me → [@LX_LT](https://alex.thalhammer.name) 

<https://alex.thalhammer.name/>

- **Alexander Thalhammer** from Graz, Austria (est. 1983)
 - **Angular Software Tree** GmbH (est. 2019)
- Web Dev for 25 years  (yes, I'm old)
- 2011 - 2017 WordPress Dev (Web, PHP & jQuery)
- Since 2017 **Angular Dev** (Web, TS, Rx - NG 4.0.0)
- Since 2020 **Angular Evangelist, Coach & Consultant**
 - Member of **Angular Architects** <https://www.angulararchitects.io/>



About me

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About you



Tell us sth about yourself

- Hi, my **name** is ...
- I currently **work** on ...
- A good **performance** is ...
- I have the following **problem** ...
- My **goal(s)** for this workshop is (are) ...



Let us know about your

- Which **OS**
- Which **browser**
- Which **IDE**
 - Make sure to update to latest version!
- What **AI** are you using



About your projects / clients

– Before I tell you sth about our workshop ☺

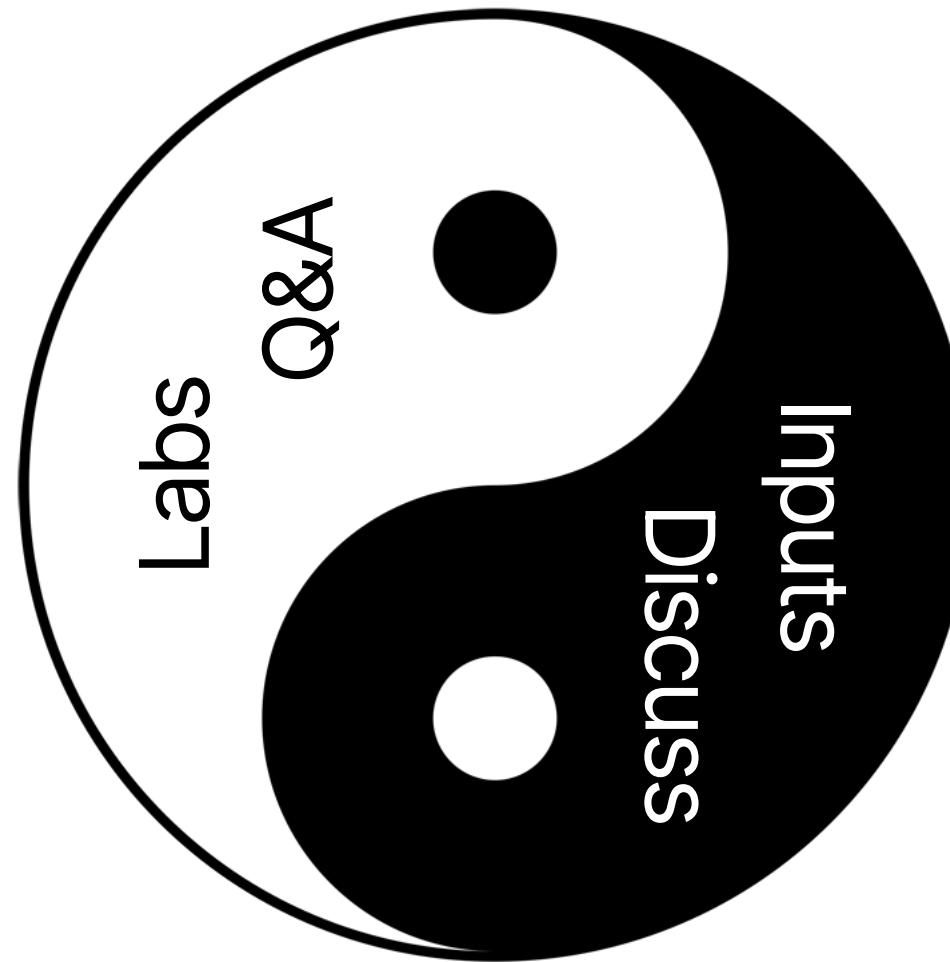
About this workshop

Every participant should



- understand the ***importance*** of performance
- know how to ***measure*** the performance
- know how to ***tweak*** the performance
- become a ***performance evangelist***
- have ***fun*** along the way 😊

Didactics



We work together

- Don't hesitate to interrupt me at **ANY TIME**
 - **Questions**
 - **Remarks** or
 - **Feedback** 😊
- Somebody else might have the same **question**
 - Be a hero and ask it



Timetable (approx.)

- 10:00 – 13:00 (incl. 15m ☕ break)
- 1hr 🍲 break
- 14:00 – 16:30 (incl. 15m ☕ break)
- 16:30 Q&A / feedback
- Incl. delay we will end at 17:00 latest 🏁

What is good performance?

- What did 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

Why Performance Optimization?

- According to *Amazon*, 0.1s less loading time results in around 1% more sales
- According to *Google*, 40% of visitors will abandon a website if it takes longer than 3 seconds to load
- Also 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
- But in the end, **fast** just is a better **User Experience** 

Angular Performance Optimization

We distinguish between

- Web performance optimization (general stuff)
- Angular specific perf. optimization

Angular Performance Optimization

We distinguish between

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

Agenda & Labs

Agenda

Intro &
Tools

SSR, SSG &
Hydration

Lazy Loading
& Deferrable

Runtime
Performance

Labs

Performance &
Build Analysis

SSR, SSG &
Incremental
Hydration

Router-based &
tmpl.-driven
Lazy Loading

Change
Detection
Strategy OnPush

Setup for Labs

- NodeJS version **^20.19.0 or ^22.12.0 or ^24**
 - <https://angular.dev/reference/versions#actively-supported-versions>

Actively supported versions

This table covers [Angular versions under active support](#).

Angular	Node.js	TypeScript	RxJS
20.2.x 20.3.x	^20.19.0 ^22.12.0 ^24.0.0	>=5.9.0 <6.0.0	^6.5.3 ^7.4.0
20.0.x 20.1.x	^20.19.0 ^22.12.0 ^24.0.0	>=5.8.0 <5.9.0	^6.5.3 ^7.4.0
19.2.x	^18.19.1 ^20.11.1 ^22.0.0	>=5.5.0 <5.9.0	^6.5.3 ^7.4.0
19.1.x	^18.19.1 ^20.11.1 ^22.0.0	>=5.5.0 <5.8.0	^6.5.3 ^7.4.0
19.0.x	^18.19.1 ^20.11.1 ^22.0.0	>=5.5.0 <5.7.0	^6.5.3 ^7.4.0
18.1.x 18.2.x	^18.19.1 ^20.11.1 ^22.0.0	>=5.4.0 <5.6.0	^6.5.3 ^7.4.0
18.0.x	^18.19.1 ^20.11.1 ^22.0.0	>=5.4.0 <5.5.0	^6.5.3 ^7.4.0

Try "node -v"

Use NVM ☺



Mac Alternative: Use Homebrew

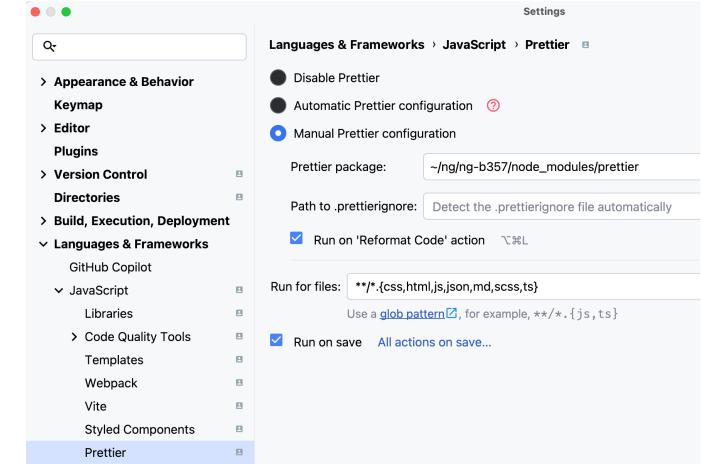


Setup for Labs

- Git
 - Personally, I used to use Sourcetree
 - but currently migrating to Tower | Fork
- VS Code (free) | IntelliJ/WebStorm
 - Personally, I still prefer JetBrains WebStorm
- 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
- Incl. Labs (exercises)
- Please clone
<https://github.com/L-X-T/ng-poland-performance>



Ready for takeoff