## **Seminararbeit**

Dynamische Programmanalysen für nebenläufige Programme - Data Race Prediction mit TSan



Frank Ling

13. Juni 2023

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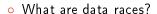
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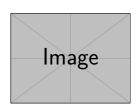
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### Introduction





- Why fix data races?
- How to detect data races?
- show code snippets and corresponding traces







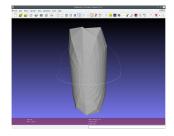
Output: Packing

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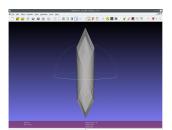
# Happens-before relation

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Lamport's HB relation



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### **Fast Track**



## TSan V2



## Conclusion

