Identification and Analysis of *unsafe.Pointer* Usage Patterns in Open-Source Go Code

TECHNISCHE UNIVERSITÄT DARMSTADT

Master Thesis Final Presentation

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Outline

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- Motivation
- Background
- Security Analysis
- Identification of *unsafe*: *go-geiger*
- Detecting Misuses: *go-safer*
- Related Work
- Discussion
- Conclusion & Future Work

Motivation

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Background

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Go unsafe API

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Security Analysis of *unsafe*

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Counting *unsafe*: *go-geiger* tool

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Detecting *unsafe* misuses: *go-safer* tool

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Related Work

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- Costa et al. concurrent study [1]

Discussion

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Conclusion

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Future Work

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- Quantifying efficiency improvements
- Static verification

Thank you for your attention!

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Questions and discussion

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References I

[1] Diego Elias Costa, Suhaib Mujahid, Rabe Abdalkareem, and Emad Shihab. Breaking Type-Safety in Go: An Empirical Study on the Usage of the unsafe Package. *arXiv:2006.09973 [cs]*, June 2020.