DR-Tools

A tool quality suite to help the
developers to maintain health and code evolution

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Who am I?

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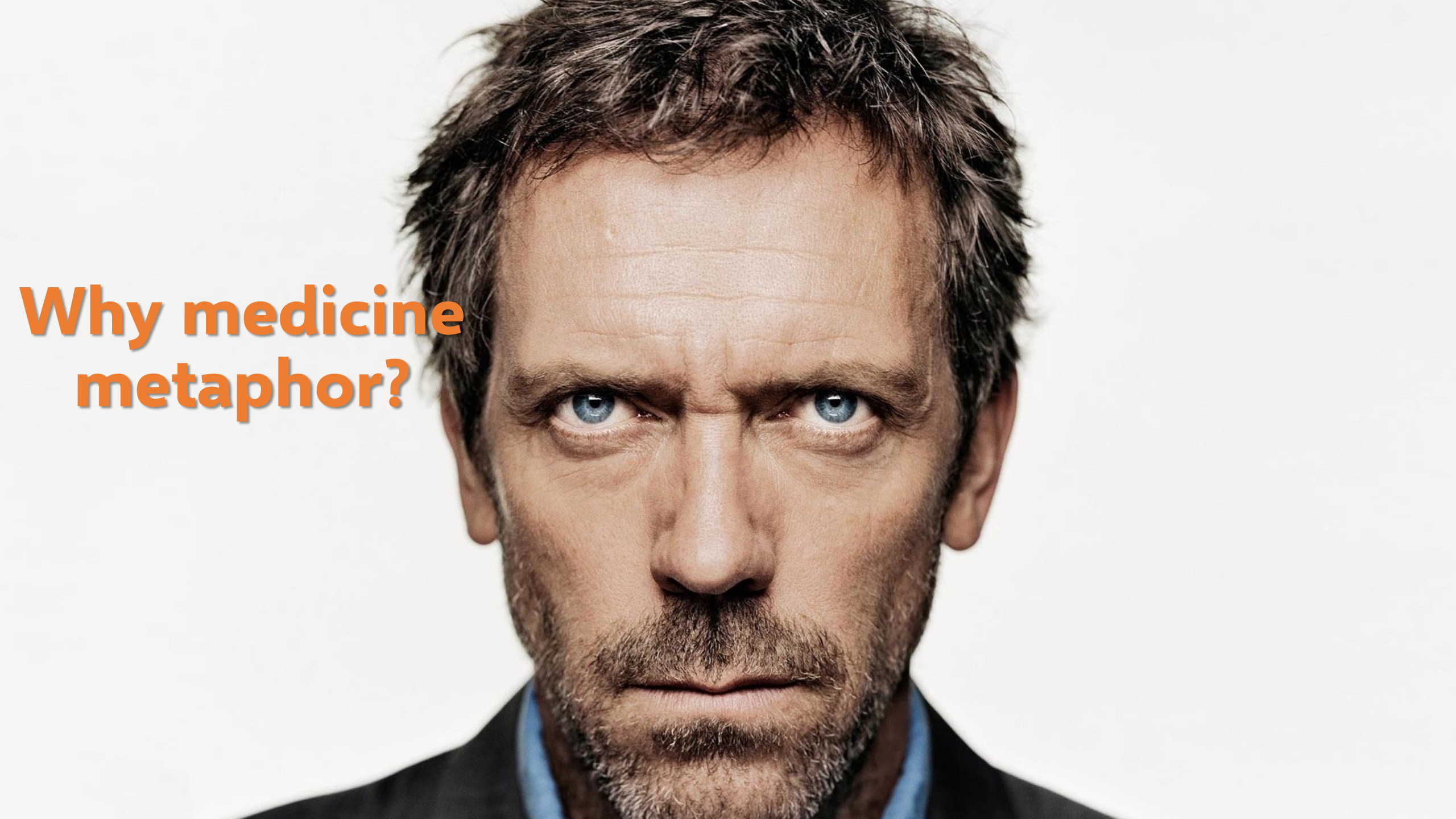
- ✓ Computer Science MSc and PhD Student (UFRGS)
- ✓ Graduate and Undergraduate Lecturer (UniRitter, Unisinos, and UFRGS)
- ✓ Associate Consultant (Wildtech)
- ✓ Agile Methods Pioneer in Brazil
- ✓ XP-RS/GUMA Community Co-founder
- ✓ ScrumAlliance , IASA, SBC, and ACM Member

WILDTECH

Why medicine metaphor?



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Metric Definition and Thresholds

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Summary

- ✓ **Small Project (SMALL)**
  small project with < 50 KLOC or 200 < classes

- ✓ **Medium Project (MEDIUM)**
  medium project with (50 KLOC <= project <= 250 KLOC) or (200 <= classes <= 1000)

- ✓ **Large Project (LARGE)**
  large project with > 250 KLOC or > 1000 classes

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Namespaces

- ✓ **Number of Types/Classes (NOC)**
  Good: <= 11; Regular: between 11 and 28; Bad: > 28

- ✓ **Number of Abstract Types/Classes (NAC)**
  Without references

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Types (1)

- ✓ **Type/Class Line of Code (SLOC)**
  Bad: > 500
- ✓ **Number of Functions/Methods (NOM)**
  Good: <= 6; Regular: between 6 and 14; Bad: > 14
- ✓ **Number of Public Methods (NPM)**
  Good: <= 10; Regular: between 11 and 40; Bad: > 40
- ✓ **Weighted Methods per Class (WMC)**
  Good: <= 11; Regular: between 11 and 34; Bad: > 34
- ✓ **Number of external (external APIs, frameworks, libs) types/classes dependencies (DEP)**
  Bad: > 20

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Types (2)

- ✓ **Number of other internal types/classes dependencies (I-DEP)**
  Bad: > 15
- ✓ **Number of other types that depend on a given type (FAN-IN)**
  Bad: > 10
- ✓ **Number of other types referenced by a type (FAN-OUT)**
  Bad: > 15
- ✓ **Number of Attributes/Fields (NOA)**
  Good: <= 3; Regular: between 3 and 8; Bad: > 8

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Methods

- ✓ **Method Lines of Code (MLOC)**
  Good: lt;= 10; Regular: between 10 and 30; Bad: > 30
- ✓ **Cyclomatic Complexity (CYCLO)**
  Good: <= 2; Regular: between 2 and 4; Bad: > 4
- ✓ **Number of Invocations (CALLS)**
  Bad: > 5
- ✓ **Nested Block Depth (NBD)**
  Good: <= 1; Regular: between 1 and 3; Bad: > 3
- ✓ **Number of Parameters (PARAM)**
  Good: <= 2; Regular: between 2 and 4; Bad: > 4

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Namespace Coupling

- ✓ **Afferent Coupling (CA)**
  Good: <= 7; Regular: between 7 and 39; Bad: > 39
- ✓ **Efferent Coupling (CE)**
  Good: <= 6; Regular: between 6 and 16; Bad: > 16
- ✓ **Package Instability (I)**
  range between 0=Maximally stability and 1=Maximally instability
- ✓ **Abstractness Degree (A)**
  range between 0=Minimally abstractness and 1=Maximally abstractness
- ✓ **Normalized Distance (D)**
  range between 0=exactly located in the main sequence and 1=far from the main sequence

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Type Coupling

- ✓ **Number of external (external APIs, frameworks, libs) types/classes dependencies (DEP)**
  Bad: > 20
- ✓ **Number of other internal types/classes dependencies (I-DEP)**
  Bad: > 15
- ✓ **Number of other types that depend on a given type (FAN-IN)**
  Bad: > 10
- ✓ **Number of other types referenced by a type (FAN-OUT)**
  Bad: > 15

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References

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