

# AiTest'21: Ethical AI-Powered Regression Test Selection

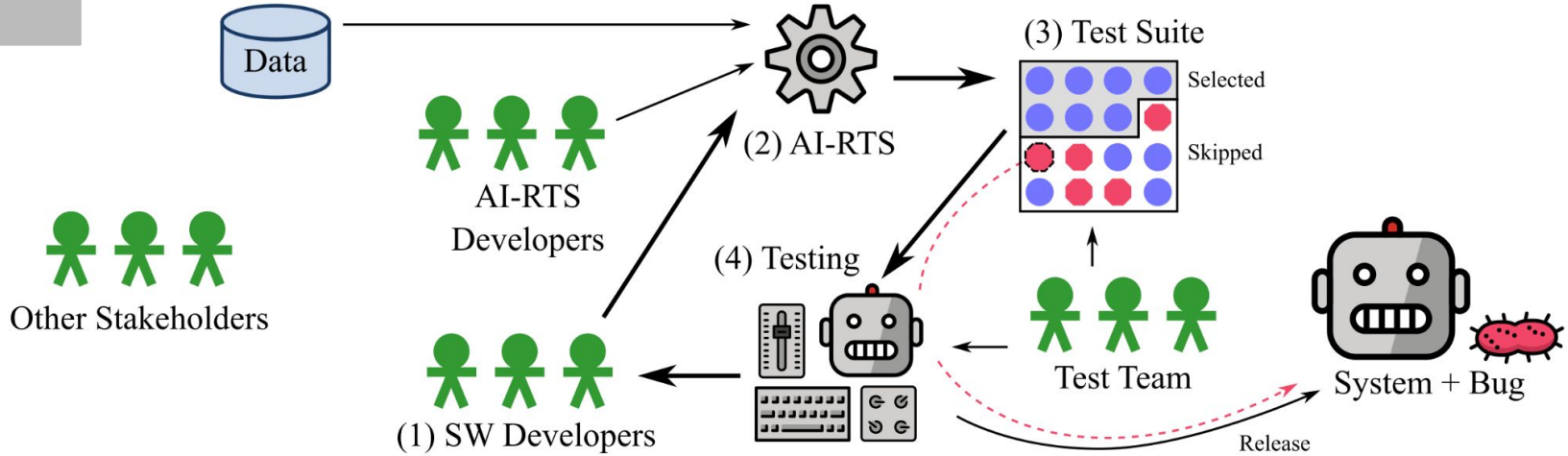
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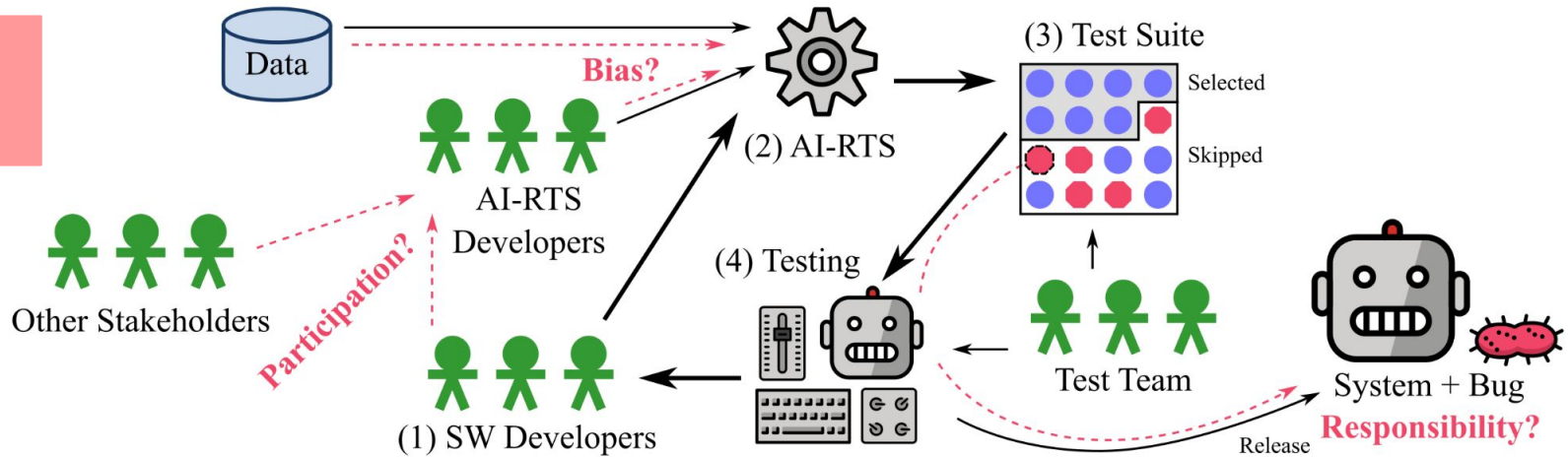
# RTS and AI-RTS



# Ethical Codes for AI

- By: Companies (e.g. Google, ...), NGOs (Amnesty, ...), Other Orgs (EC, ...), etc.
- Survey 2019 by Jobin et al. ([arXiv](#))
- Top Five Principles: transparency, justice and fairness, non-maleficence, responsibility, and privacy (Jobin et al.)

# Challenges (in “red”)



# Responsibility ← Explicability

- Why was test A more important than B?
- Too many decisions for humans to keep up?
- Transparency/Explicability: Log states and decisions (avoid error message blindness).
- (Overlap with bias and lack of participation: e.g. programming errors.)

# Three Approaches

- Explicability (main target: Responsibility)
- Supervision (main target: Bias)
- Diversity (main target: Lack of Participation)

# Checklist

1. How are humans in control?
2. Explain to a human?
3. Log decisions/malfunctions?
4. Under-performance: tell who/how?
5. Risk analysis?
6. Just test selection?
7. Impact of decision monitored? Test coverage?
8. Silenced some stakeholders?
9. How get stakeholder awareness?
10. What is the impact on human performance?

# AiTest'21: Ethical AI-RTS

- Ethical AI-RTS
- Responsibility, Bias & Participation
- Explicability, Supervision & Diversity
- Checklist for Ethical AI-RTS

(Pre-print in arXiv: [2106.16050](https://arxiv.org/abs/2106.16050))

