

Trust in AI: A Mixed Methods Protocol to Explore Expert Developers' Trust in Agentic Coding Assistants

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Introduction

Understanding trust of generative AI is critical due to the rapid development and adoption these tools across disciplines and industries. However, it is not understood how trust works in the workplace with generative AI tools, especially as these tools are anthropomorphized which blurs the line of the existing trust frameworks of human-machine and human-human trust [3].

Research Questions

- How does the accuracy of an agentic coding assistant impact end-user trust?
- How does the end-user's expertise, demographics, and traits impact trust of an agentic coding assistant?
- Does this proposed protocol effectively measure trust of agentic coding assistants?

Methodology

This a mixed-method protocol that combines the use of existing trust scales and questions, the observation of a programming task using an agentic coding assistant, and a semi-structured interview. Participants will be experienced programmers recruited from universities and industry in Ireland.

Protocol

Phase 1: Initial Survey

Trust [2]

Generally speaking, would you say that most **people** can be trusted, or that you can't be too careful in dealing with **people**?

Also, asking for:

- generative AI
- technology companies

AI Use

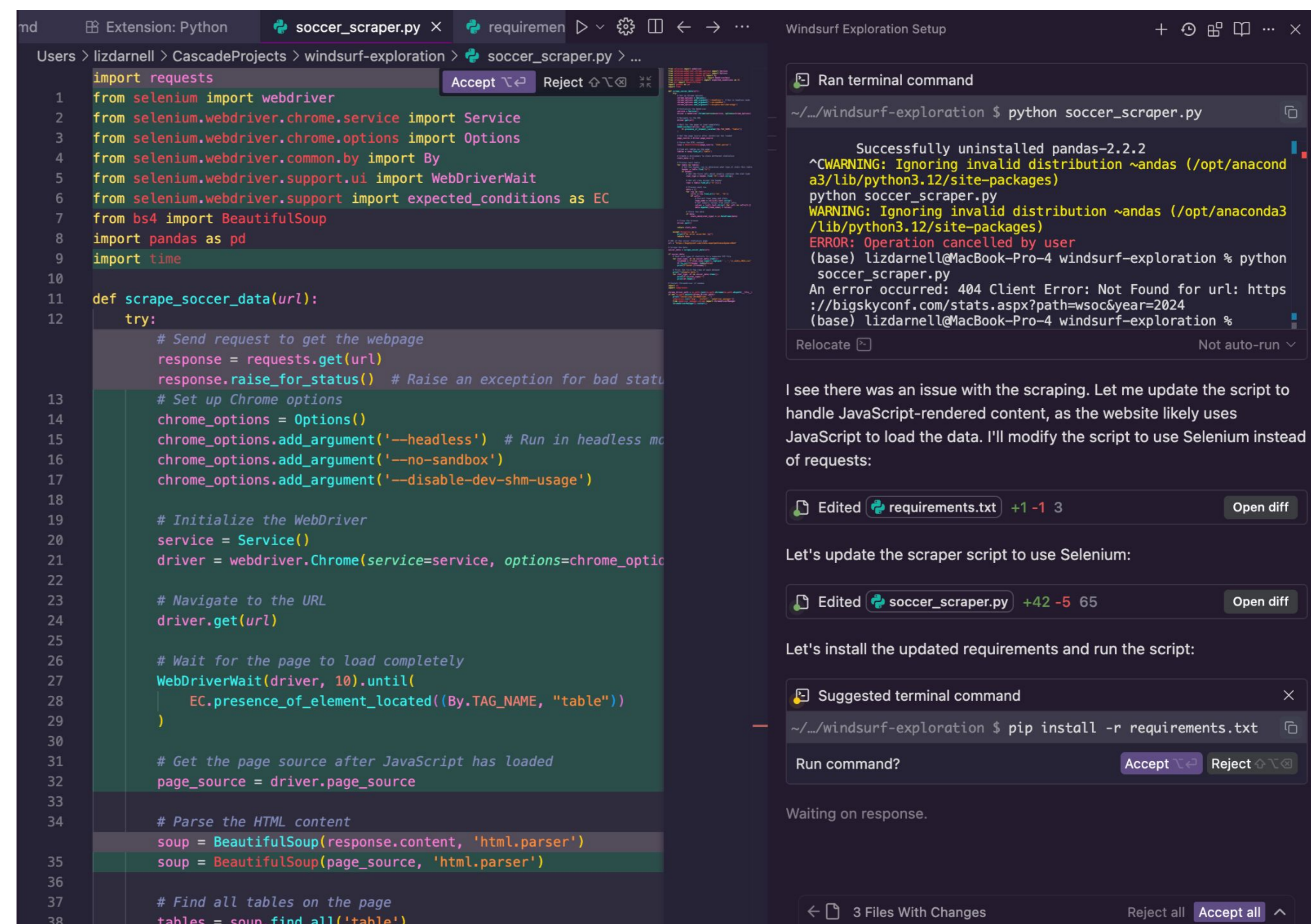
- How frequently do you use generative AI tools in the workplace?
- What generative AI tools do you use the most often in the workplace?
- What types of tasks do you use or not use generative AI for in the workplace?

Phase 2: Task with Agentic IDE Participants will explore coding in the agentic coding assistant, Windsurf, for up to 30 minutes.

Pre-Task

On a scale of 1 (beginner) to 5 (expert),

- how comfortable are you with R?
- how comfortable are you with Python?



Evaluation

- Do you think the code generated is right or wrong?
 - How confident are you in that answer?
- How much do you trust the result?

TIA Checklist [1]

- The system is deceptive.
- I am suspicious of the system's intent, action, or outputs.
- I am wary of the system.
- I am confident in the system.
- The system is reliable.
- I can trust the system.

Phase 3: Semi-Structured Interview covering the topics:

- the task and general trust of the agentic coding assistant
- their individual use of generative AI
- what the role of AI has been in their workplace
- general individual propensity to trust

Next Steps

- Evaluate the protocol in this agentic coding assistant case
- Iterate and refine the protocol for new generative AI tools
 - Including but not limited to a RAG bot on workplace policy

Proposed Contributions

- A better understanding of trust in generative AI tools in the workplace
- Upon validation of the protocol, a protocol that can be utilised by other researchers
- Improve the methods of measuring and understanding trust and improve the standardisation of these methods

References

1. Jiun-Yin Jian, Ann M. Bisantz, and Colin G. Drury. 2000. Foundations for an Empirically Determined Scale of Trust in Automated Systems. *International Journal of Cognitive Ergonomics* 4, 1.
2. Eric M Uslaner. 2012. Measuring generalized trust: in defense of the "standard" question. In *Handbook of Research Methods on Trust*. 72–82.
3. Oleksandra Vereschak, Gilles Bailly, and Baptiste Caramiaux. 2021. How to Evaluate Trust in AI-Assisted Decision Making? A Survey of Empirical Methodologies. *Proceedings of the ACM on Human-Computer Interaction* 5, CSCW2.

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