

Impact of LLM-Assisted Coding in Creativity and Robustness of Robot Controllers

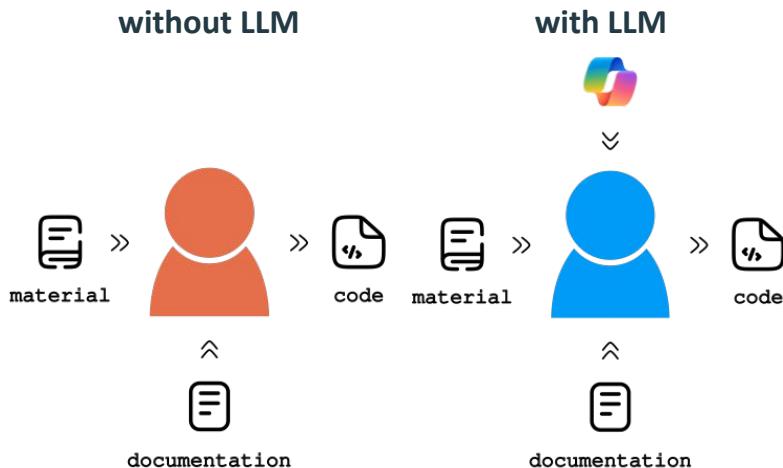
Paolo Baldini, Michele Braccini, Andrea Roli
University of Bologna, Campus of Cesena

Motivations and goals

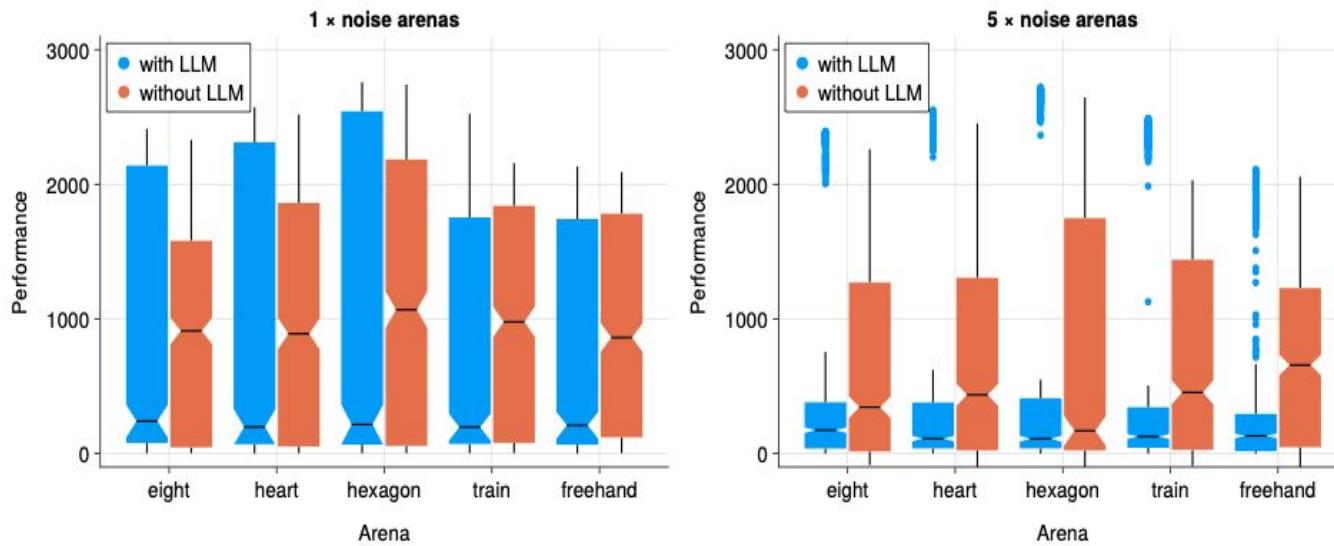
- LLMs are changing the industry (and the world)
- no clear understanding of their effects
- how do LLMs affect robot programming?
- assessment by means of performance metrics

Experimental approach

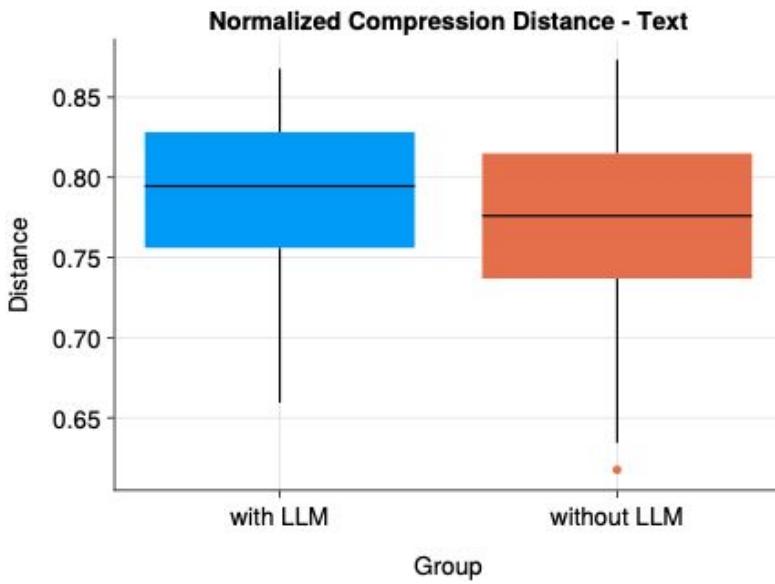
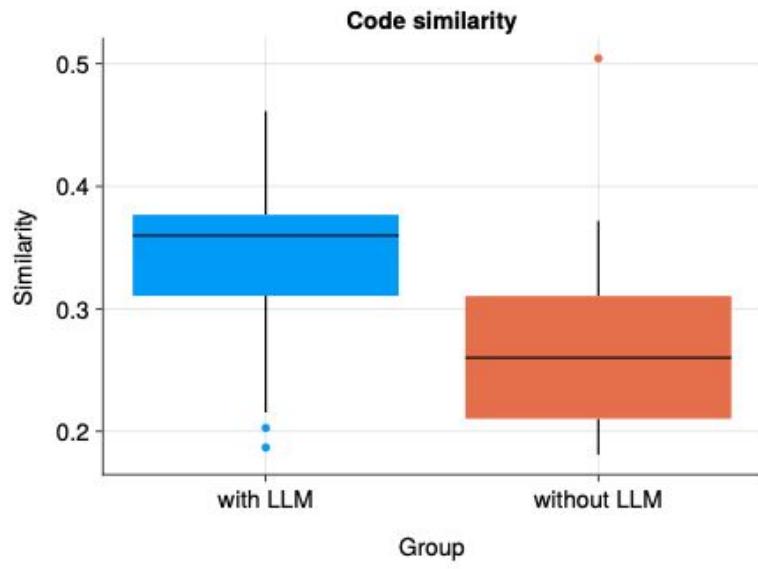
- two homogeneous groups
- one group assisted by Copilot
- one group programming alone
- evaluation with a line following task
- three train arenas, two test arenas



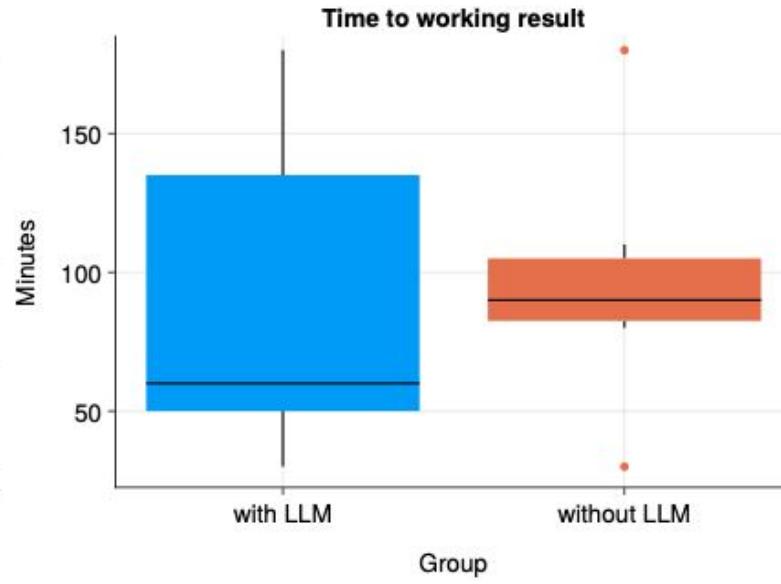
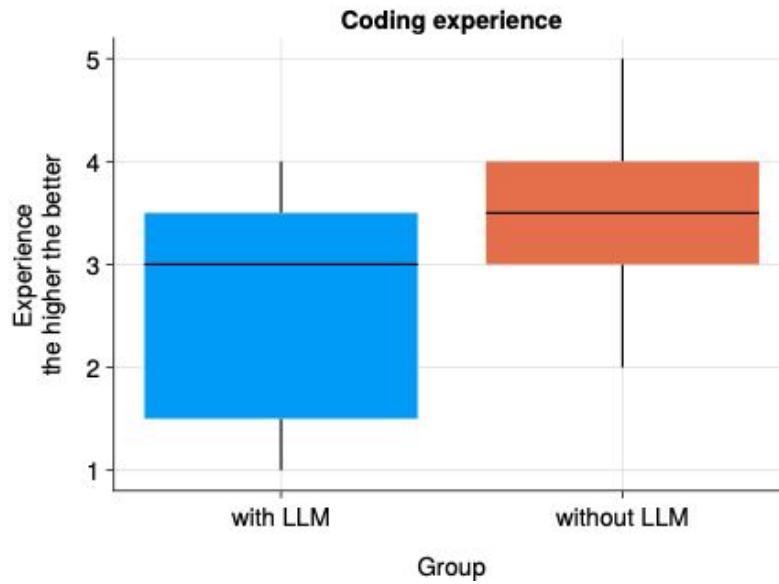
Results: performance & pseudo reality gap



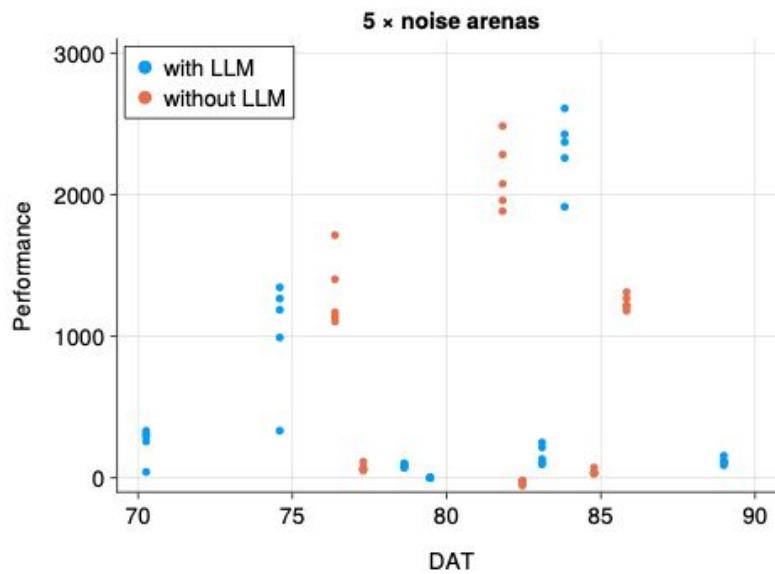
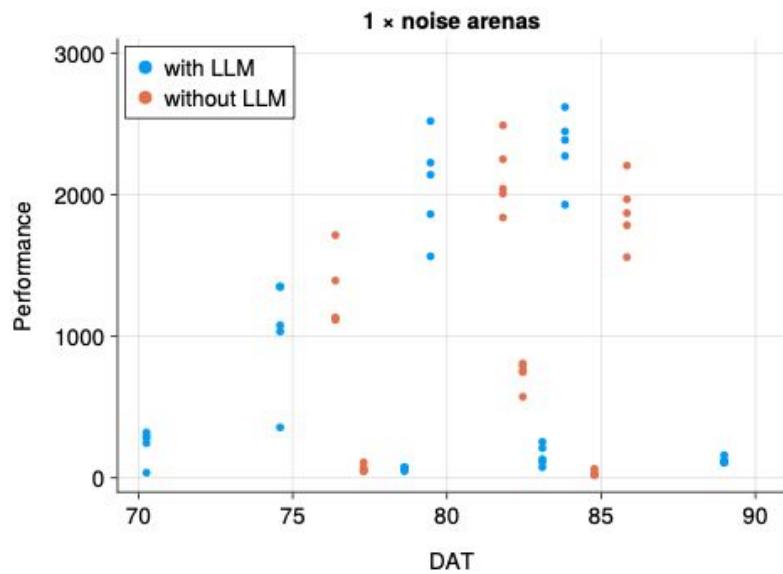
Results: code similarity



Results: experience and time



Results: performance per DAT



Conclusions

- we observe that programming assisted by Copilot caused:
 - lower median performance
 - greater sensibility w.r.t. the reality gap
 - more similar codes
 - faster development
 - frustration during development
- we acknowledge the limited group size and task variability