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User Performance Differences in Domain-General and Domain-Specific Interactions with ML

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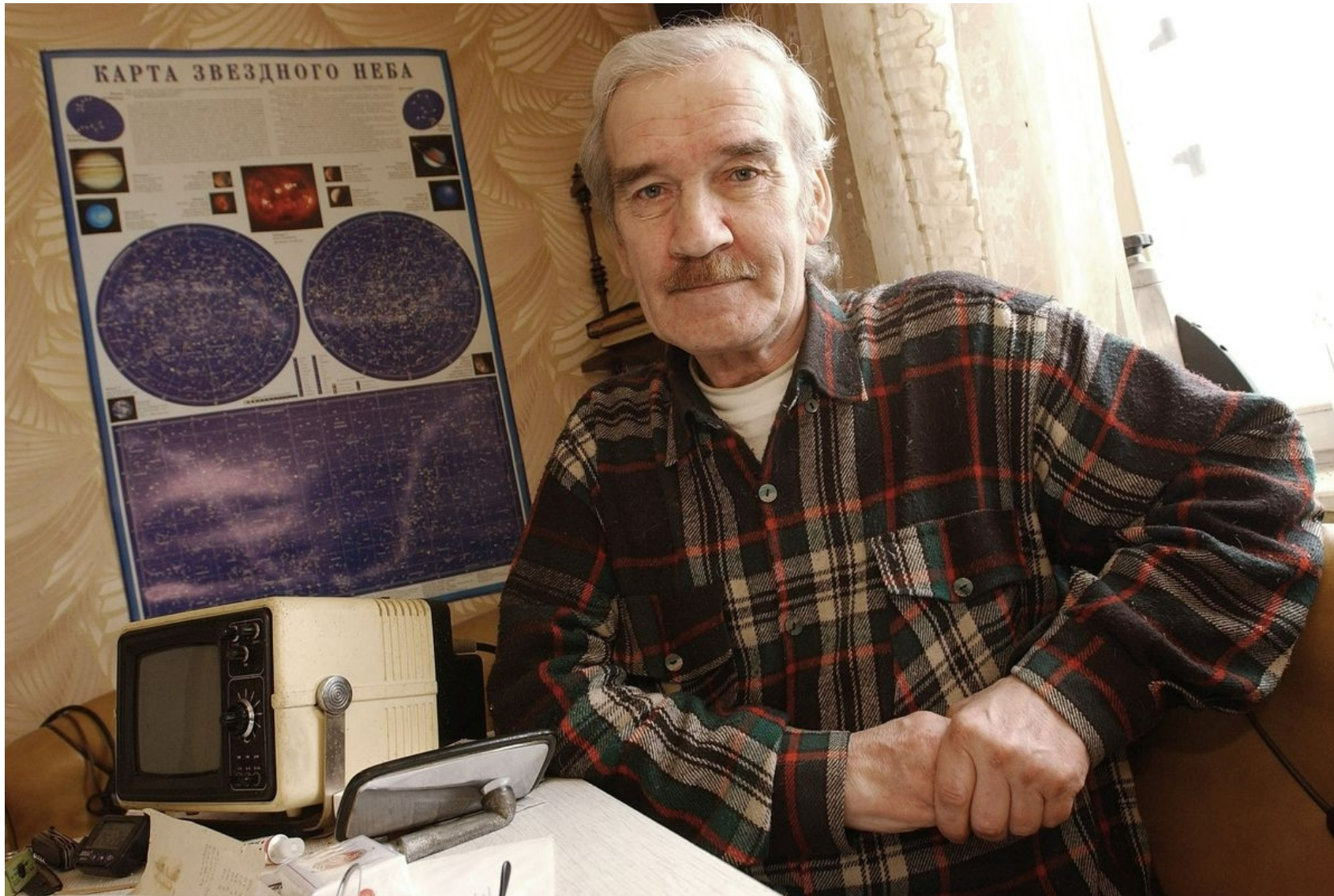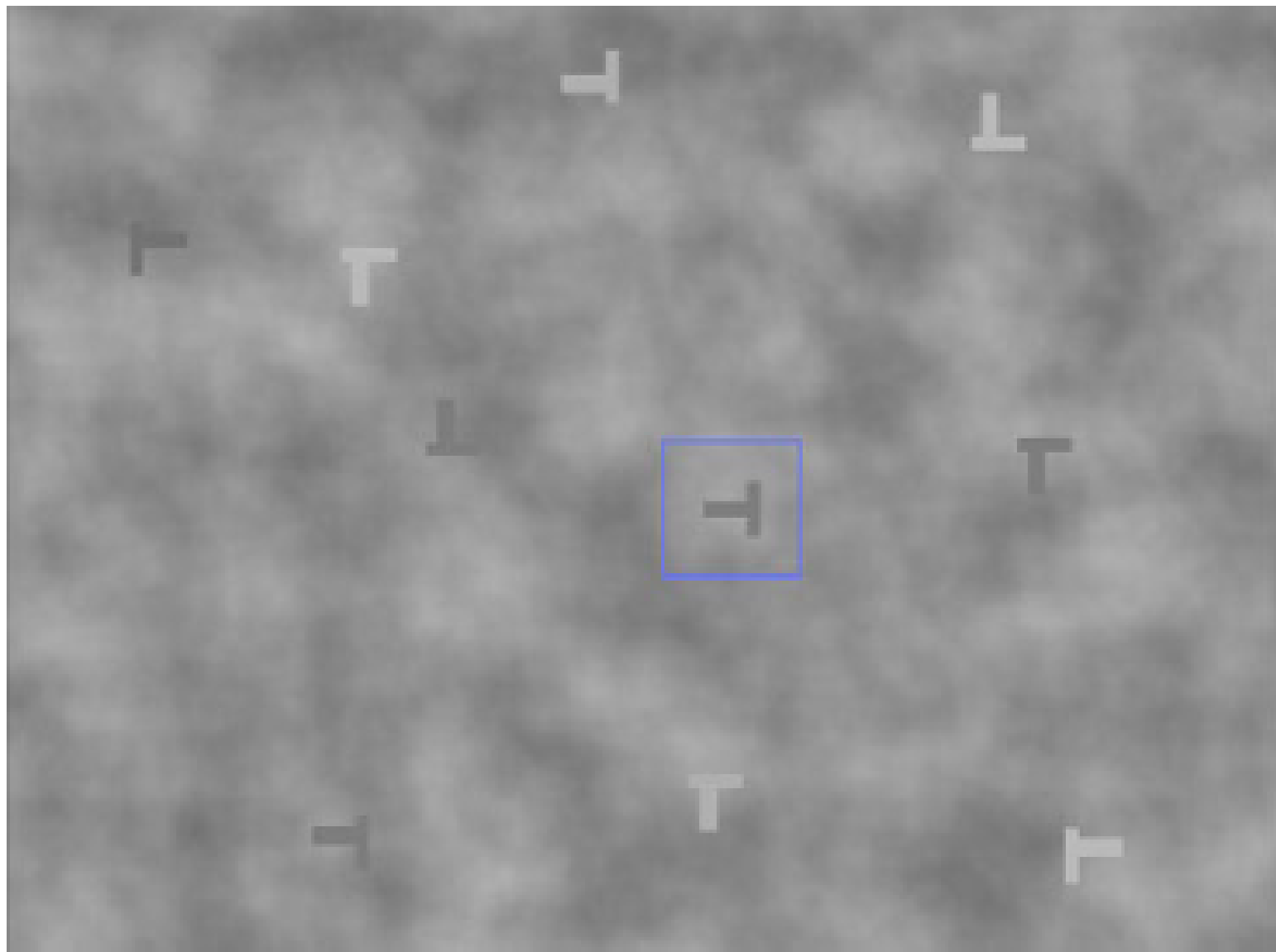# Sometimes, ML is wrong but the consequence is low

Sometimes, the consequence could be very high...

Scott Peterson/Getty Images, 2004

Human performance on visual search task using simulated ML differs between:

1) Domain–general tasks

2) Safeguards relevant tasks

Inform how you test your algorithms, not just for **algorithm performance**…

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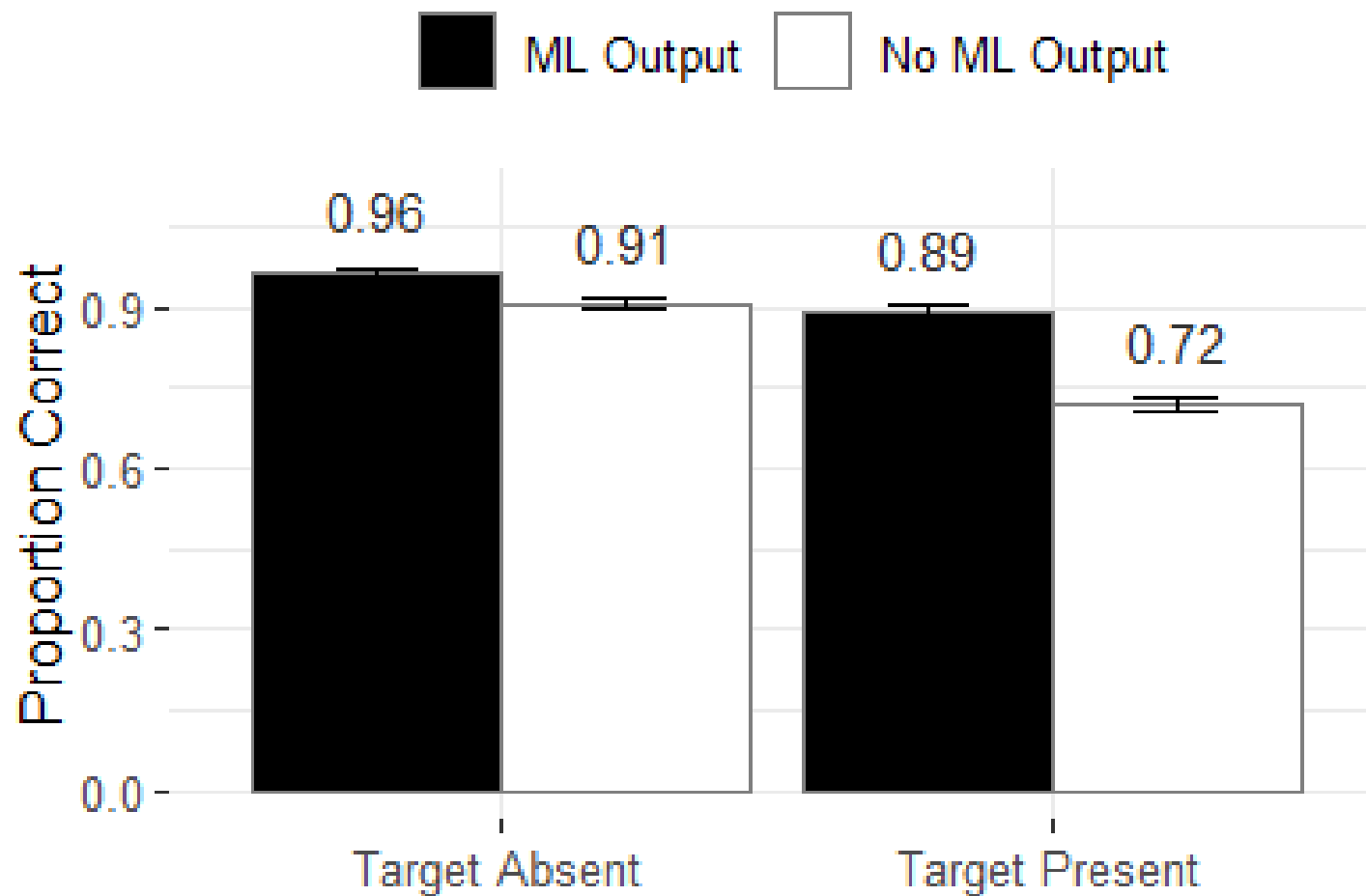
but for **system performance.**

Presentation Plan:

1) ML output impacts users, sometimes in unexpected ways.
2) Impacts are different in domain-general and domain-specific tasks.
3) Expertise may play a role.

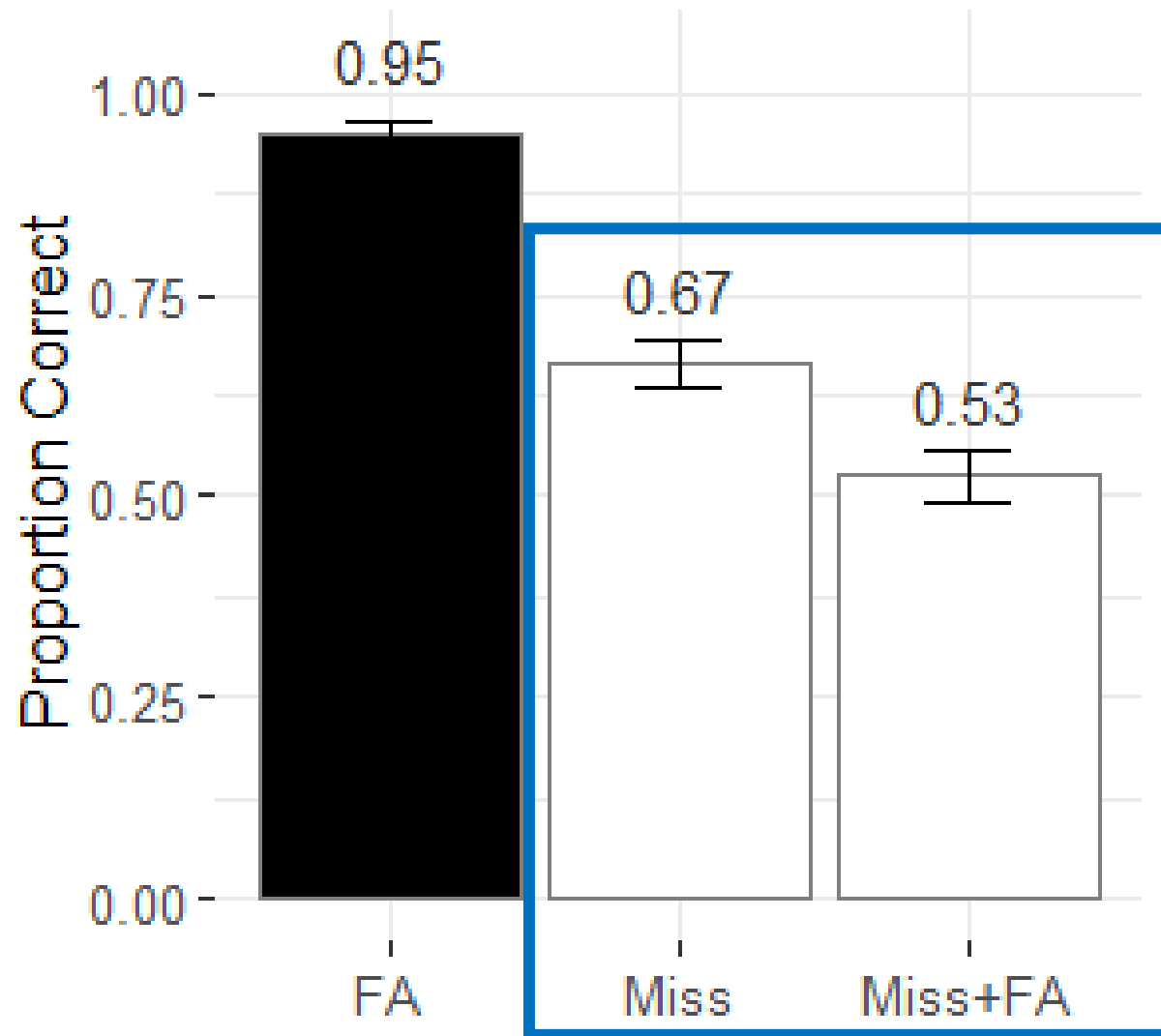# 1. ML Impacts Users, Sometimes in Unexpected Ways

Even imperfect ML can help users identify targets

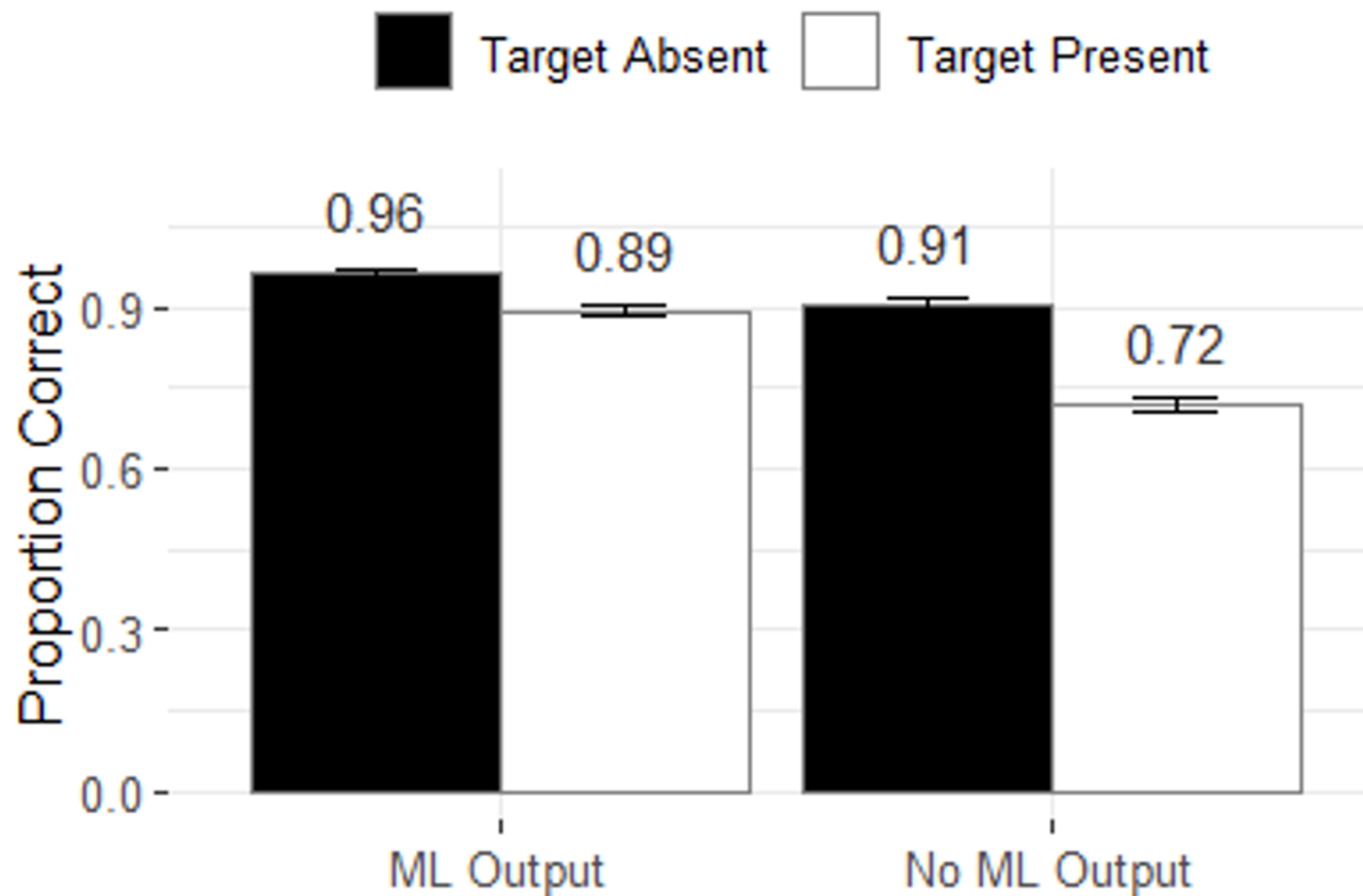# ML errors can be detrimental to performance, depending on the error.

The addition of ML output led to a decrease in performance on target present trials from 0.72.
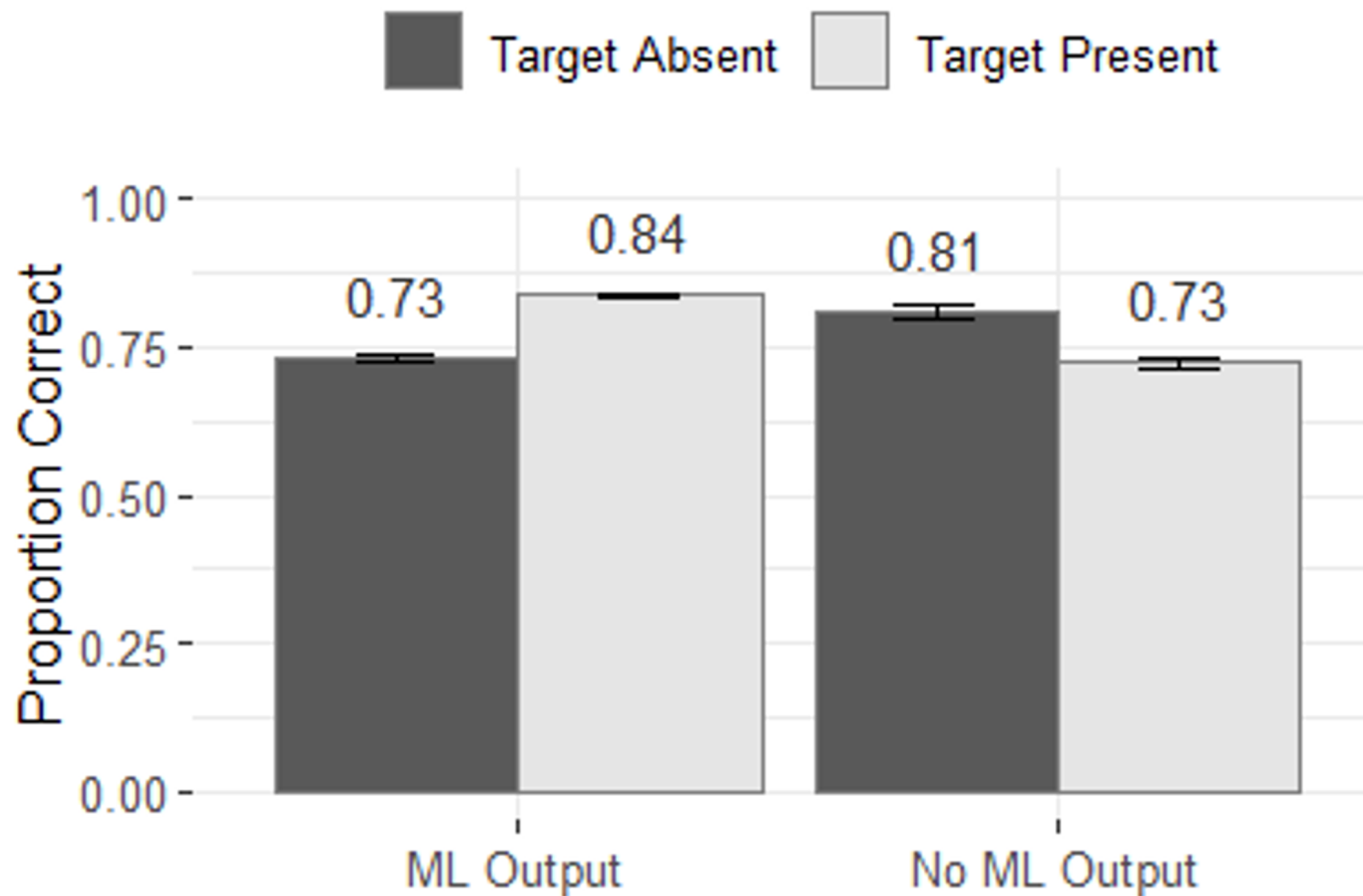
2. ML Impact may Differ by Domain

ML increased performance for target present and target absent conditions in the domain-general experiment.

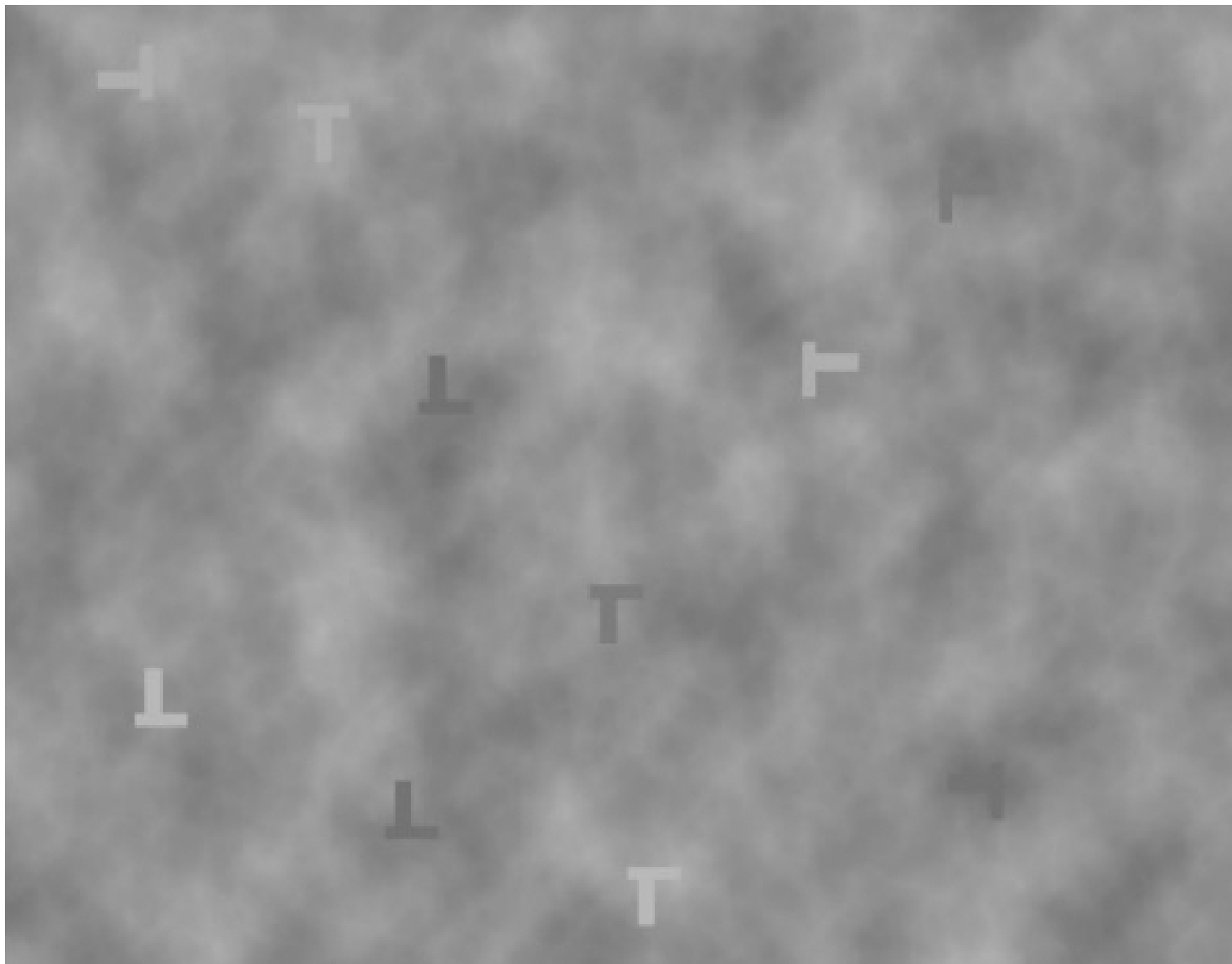For the domain-specific experiment, performance on "target absent" conditions went down with ML output.

3. Domain Differences may be related to expertise

Ts and Ls are relatively straightforward to identify.

Cooling towers are more difficult, and could be subjective.

Experience with domain may help.