CSE 593

Specifying User Requirements

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Course content adapted with modification from original materials by Nikola Banovic

EECS ELECTRICAL ENGINEERING AND COMPUTER SCIENCE
UNIVERSITY OF MICHIGAN

Logistics

- Assignment 1 (Individual) being graded.
- High-level feedback sent on surveys
- Assignment 1 (Group) due tomorrow, Wednesday, at 5PM.

Project document

- Abstract, Intro, Discussion, Conclusion in the framework of Promise, obstacles, solutions, takeaways
- Obstacle: at the very least lacking knowledge about the current context of use
- Solution: establish this focus through a survey
- Takeaways: interpretations of your results
- Discussion: takeaways, how your solution brought you closer to your promise, and reflections

Learning goals

Define user requirements

Learn to differentiate system requirements (i.e., system constraints) from user requirements

Learn to specify user requirements

Learning goals

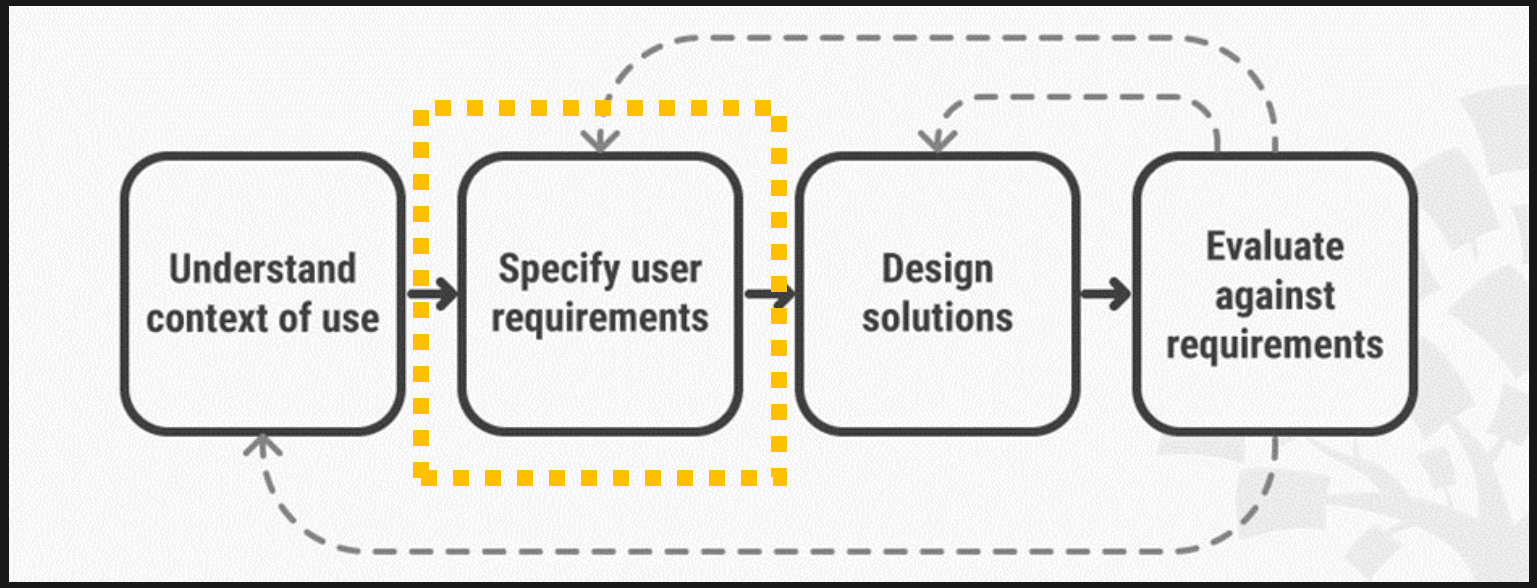
Define user requirements

Learn to differentiate system requirements (i.e., system constraints) from user requirements

Learn to specify user requirements

But first, Quiz 3 review.

User-Centered Design Process



Interaction Design Foundation (https://www.interaction-design.org/literature/topics/user-centered-design)

What are user requirements?

“Formal specifications
that describe
user goals and tasks.”

What are system requirements?

What are system constraints?

"Design restrictions present in the current context of use (often due to limited resources)."

Please answer this question in Canvas

Consider the following requirement:

User must have access to a 5G-enabled device to communicate with their friend. (SD: Texting a friend)

What best describes this requirement? Select all that apply.

- ❑ It is a fact.
- ❑ It is a user requirement.
- ❑ It is a system requirement.

You have 120 seconds…

DONE!

Where do the requirements come from?

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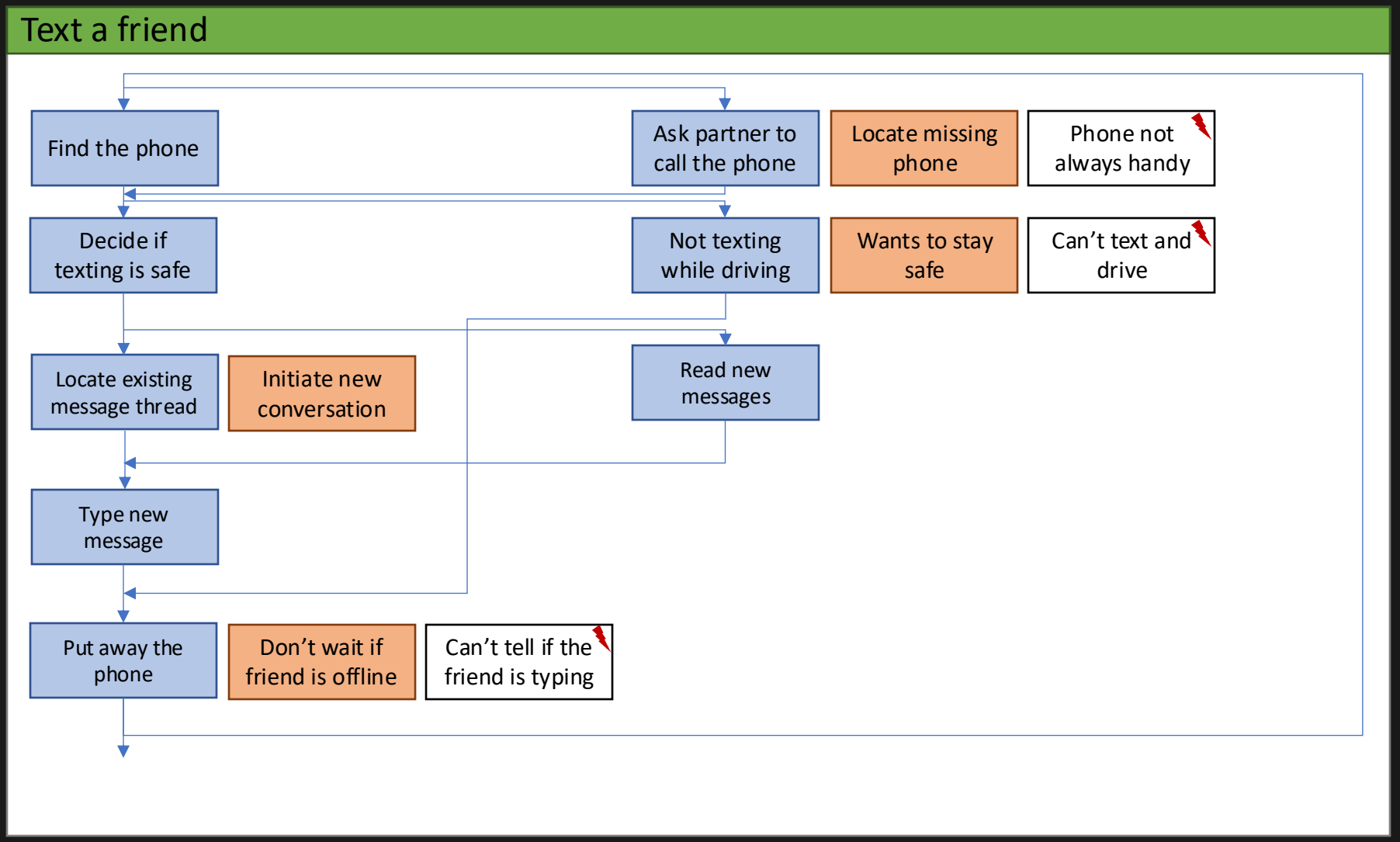
"From every aspect of the current context of use.
E.g., each item in each model you created is a requirement. Breakdowns are gaps that designs need to address."

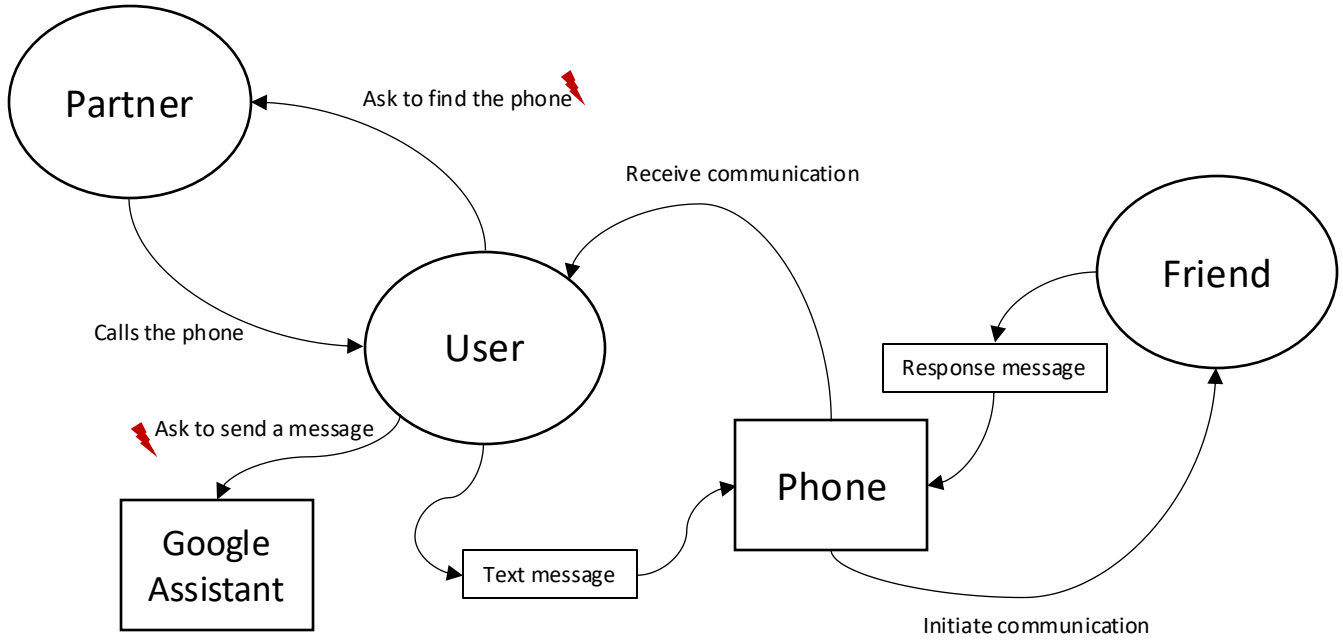
Example: texting a friend

Code	Interpretation
U01-01	They texted their friend to check on existing plans.
U01-02	To text a friend they had to first find their phone that is not always on them.
U01-03	They had to ask their significant other to call their phone to be able to find it.
U01-04	To text a friend they located an old SMS thread and simply ”replied” to an unrelated message. It does not matter what the previous message was about.
U01-05	They then typed a message asking about dinner plans later that weekend. They read the message a few time before sending to make sure it was free from errors and that it “made sense.”
U01-06	The friend does not always respond right away; that is fine as long as they hear back in time.
U01-07	When phone is handy, they can text right away.

Consolidated sequence model



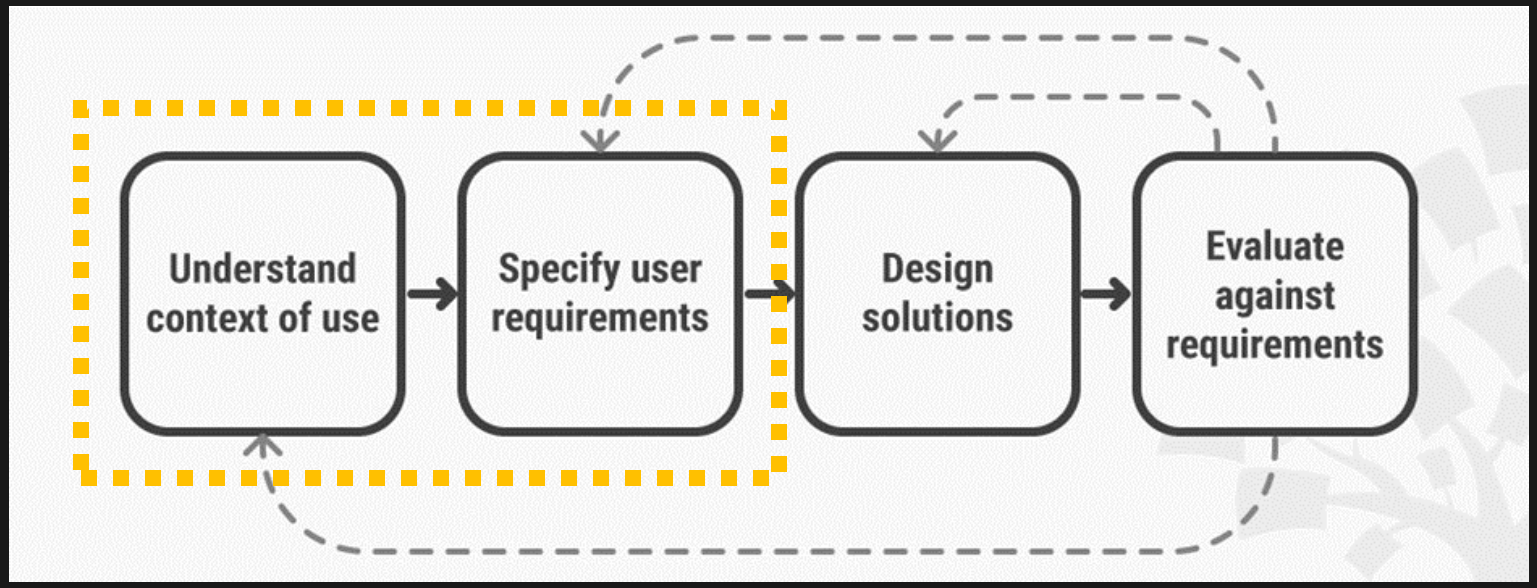
Consolidated flow diagram



Specifying user requirements

User requirements must be grounded in context of use.

User-Centered Design Process



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Specifying user requirements

User requirements must be grounded in context of use.

User requirements must be objective.

User requirements must be testable.

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User requirements must be testable.

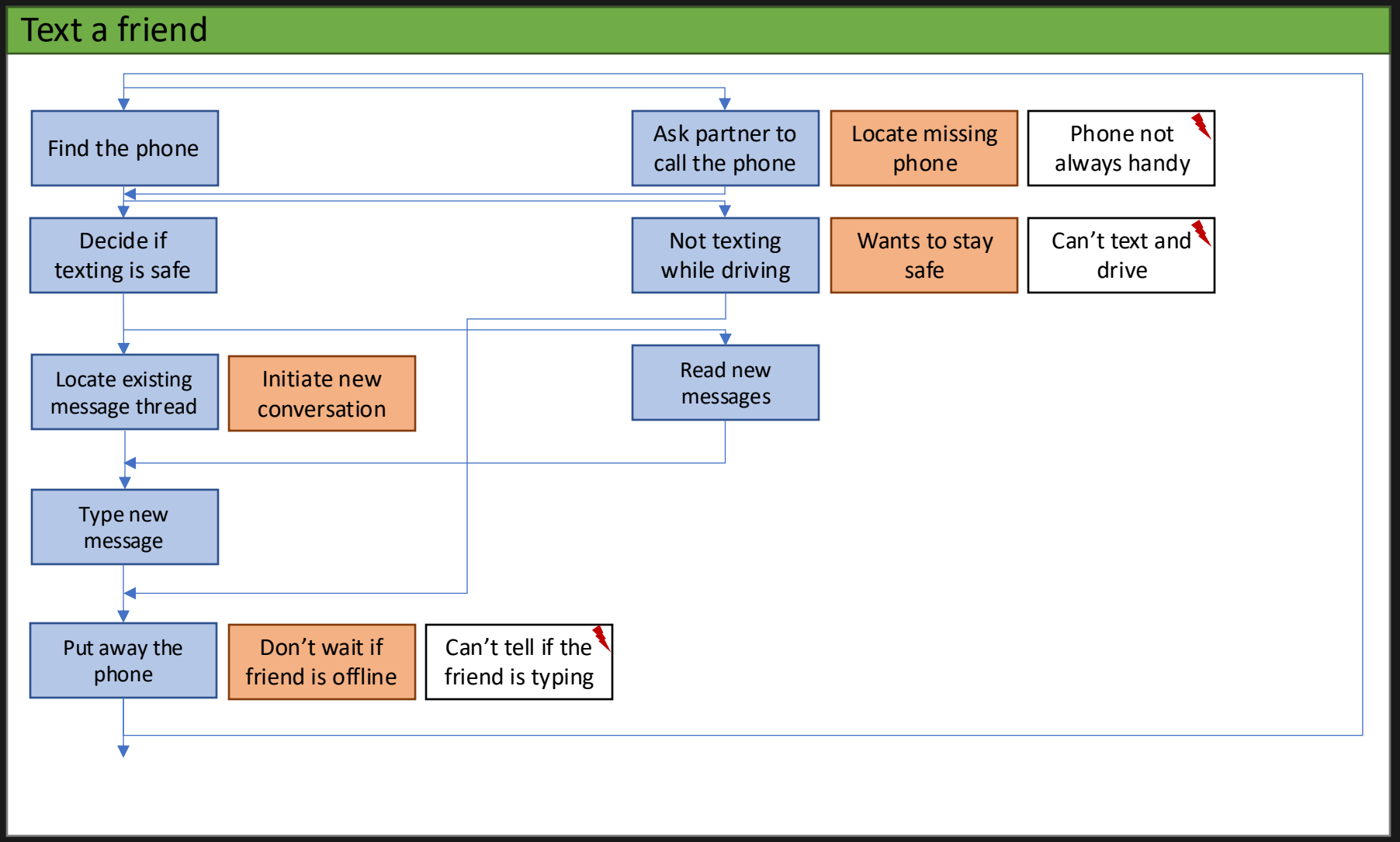
User requirements must not imply a solution.

User requirements must be comprehensive.

Example: Specifying user requirements

Focus: How do people communicate on their mobile devices?

Consolidated sequence model



Example: Specifying user requirements

Requirement:

Users must be able to tell if the friend is typing. (SD: Texting a friend, U01-06)

Example: Specifying user requirements

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Requirement:

When awaiting a response, users must be able to tell if the person they are communicating with is preparing a response. (SD: Texting a friend, U01-06)

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When awaiting a response, users must be able to tell if the person they are communicating with is preparing a response before they decide to switch tasks. (SD: Texting a friend, U01-06)

Example: Specifying user requirements

Requirement:

When awaiting a response, users must be able to tell if the person they are communicating with is preparing a response before they decide to switch tasks above random chance. (SD: Texting a friend, U01-06)

Common Pitfalls

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Requirement that is not grounded in data:

The user must be able to type their message faster than 30 words-per-minute.

Common Pitfalls

Requirement that is not grounded in data:

The user must be able to type their message faster than 30 words-per-minute.

Common Pitfalls

Requirement that is not objective:

The user must be able to type fast.

Common Pitfalls

Requirement that is not objective:

The user must be able to type fast.

Common Pitfalls

Requirement that is not testable:

The user wants to type.

Common Pitfalls

Requirement that is not testable:

The user wants to type.

Common Pitfalls

Requirement that implies a design:

The user must be able to type their message faster than 30 words-per-minute.

Common Pitfalls

Requirement that implies a design:

The user must be able to type their message faster than 30 words-per-minute.

Please answer this question in Canvas

Consider the following requirements based on the example consolidated sequence diagram from the lecture slides.

What are some of the potential problems with those requirements? Select all that apply.

Please answer this question in Canvas

“Users must be able to text and drive. (SD: Texting a friend;)”

What are some of the potential problems with this requirement? Select all that apply.

- ❑ It is not grounded in context of use.
- ❑ It is not objective.
- ❑ It is not testable.
- ❑ It implies a solution.
- ❑ Seems ok…

You have 120 seconds…

DONE!

Please answer this question in Canvas

"Users must be able to safely operate a vehicle while responding to a message. (SD: Texting a friend)"

What are some of the potential problems with this requirement? Select all that apply.

- ☐ It is not grounded in context of use.
- ☐ It is not objective.
- ☐ It is not testable.
- ☐ It implies a solution.
- ☐ Seems ok...

You have 120 seconds…

DONE!

Please answer this question in Canvas

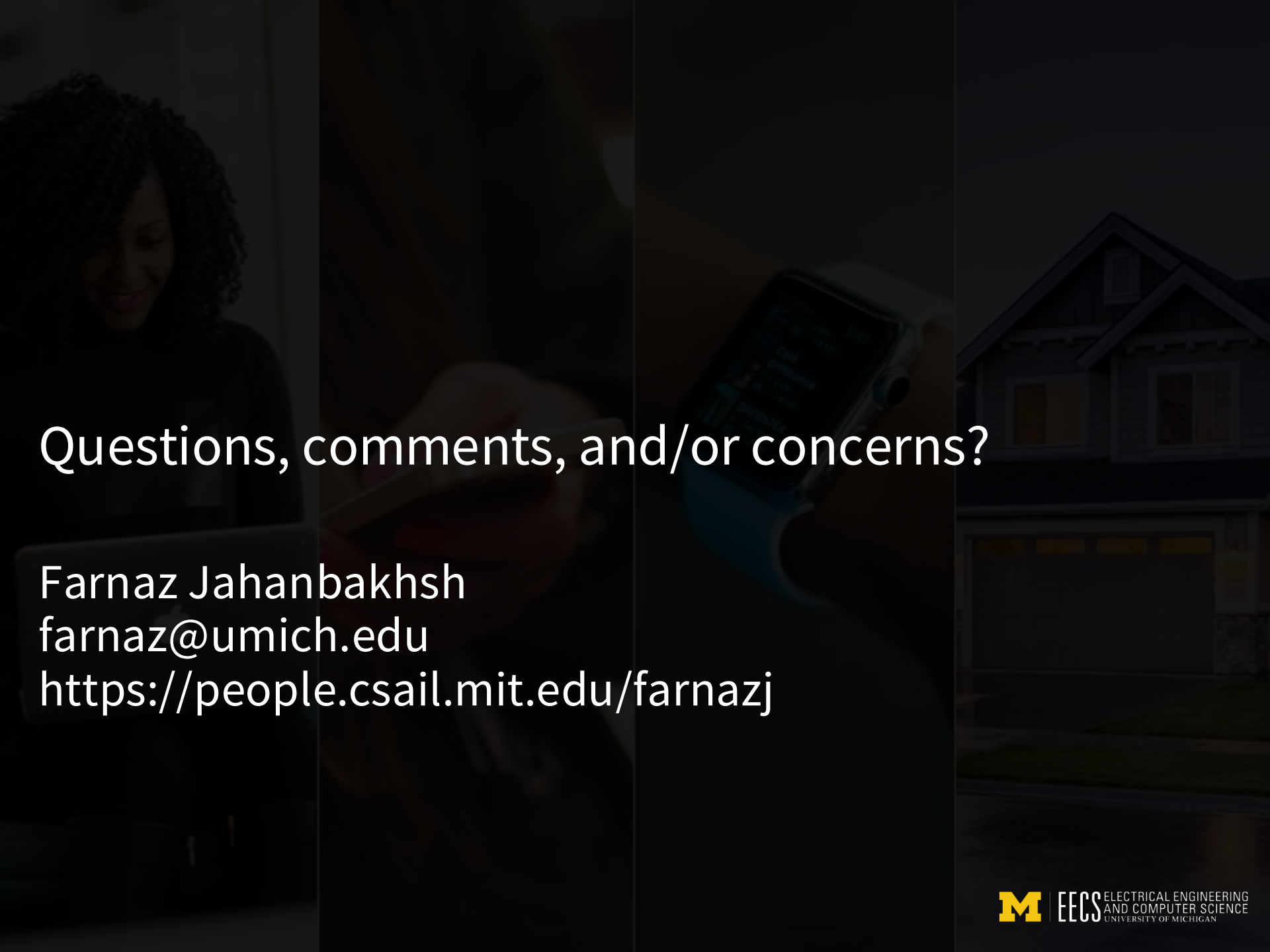
“Users' workload (both physical and cognitive) required to notice, comprehend, decide whether to respond, and to respond to a communication must not cause a driving incident. (SD: Texting a friend)”

What are some of the potential problems with this requirement? Select all that apply.

- ❑ It is not grounded in context of use.
- ❑ It is not objective.
- ❑ It is not testable.
- ❑ It implies a solution.
- ❑ Seems ok...

You have 120 seconds…

DONE!



Questions, comments, and/or concerns?

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