Engineering Better Learning: Practical On-Ramps to the Emerging Practice of Learning Engineering

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- What is IEEE ICICLE?
- What is Learning Engineering?
- What are Key Processes of Learning Engineering?
- How can I learn more and get involved?

Discussion: What tools and "onramps" are needed to advance the practice of learning engineering?

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IEEE ICICLE

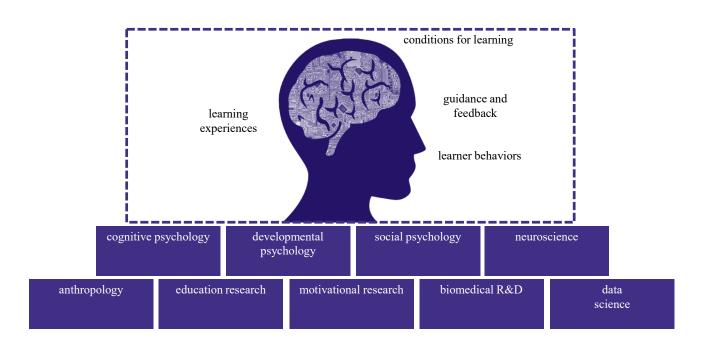IEEE IC Industry Consortium on Learning Engineering

Learning Engineering is a *process* and *practice* that

1. applies the **learning sciences**,

2. using **human-centered engineering design methodologies**, and

3. **data-informed decision-making**
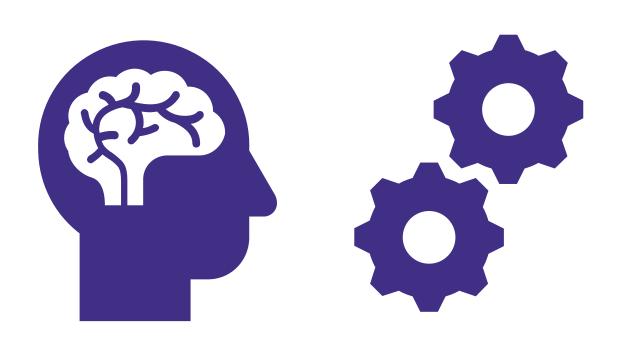
to support learners and their development.

Learning Engineering is...
Applied Learning Sciences

conditions for learning
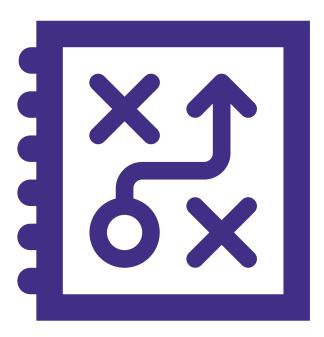
guidance and feedback

learning experiences

learner behaviors

| cognitive psychology | developmental psychology | social psychology | neuroscience |

| anthropology | education research | motivational research | biomedical R&D | data science |

Learning Engineering is…
a **Creative Problem-Solving** *Process*

a.k.a. an engineering Process

Learning Engineering is…
Data Driven

learning engineering emphasizes instrumentation of data to inform an *iterative* design, development, and improvement process

Key Processes

- **Knowledge domain modeling**
- **Activity modeling**
- **Learner modelling**
- **Instrumenting**
- **Design and Development**
- **Data analytics**
- **Iterative improvement**

Learning Engineering is…
more of a verb than a noun.

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Discussion:

What is needed to advance the practice of learning engineering?