Just Truss Me: Symbol Recognition

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Steps to Recognition:

1. record points as pen traces on screen and add points to a new stroke
2. send each new stroke to PaleoSketch to find primitive shapes (⁄ , ○, △, ↑, etc.)
3. push shape onto stack
4. send shapes on top of the stack to complex shape recognizers that apply geometric constraints
5. combine into complex shape

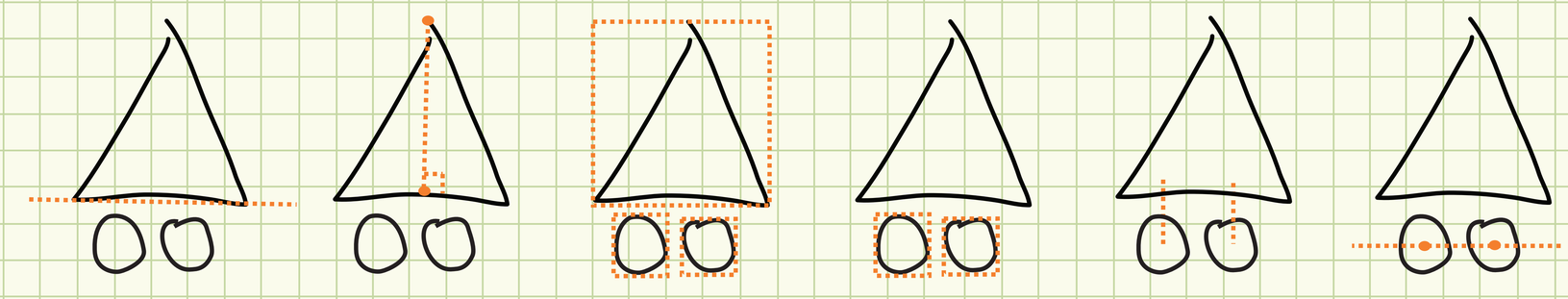
Why We Recognize:

Truss mechanics are an essential concept to early engineering education. Diagrams are the natural way of representing trusses, but they are exceptionally time-consuming to grade.

We introduce Mekanix, a pen-based sketch recognition system that can recognize, correct, and provide feedback on a student's hand-drawn truss diagram in real time.

Example Geometric Constraints:

Roller Support



- bottom-most line must be horizontal
- top intersection point and bottom midpoint must form perpendicular line
- circles must be smaller than the triangle
- circles must be similar in size to one another
- circles must be below and reasonably near the triangle
- midpoints of circles must form horizontal line

Other Recognizable Shapes: