Project Idea 1

Research and extend the basic functionality of the AR sandbox, which is the augmented reality training environment.
Project Idea 2

Implement Bayesian Knowledge Tracing and Performance Factor Analysis Student Modelling Algorithms and build them into the LearnLytics Platform
Project Idea 3

Design Bayesian Network models of several math tasks that would help diagnose skills responsible for incorrect solution.

Sergey Sosnovsky

3. Matryoshka doll 1 (N2&N3)

Task (source CITO)

On your right hand side you see three Matryoshka dolls. The puppets fit into each other, due to a decreasing height. The biggest puppet is 32 cm high. Each next puppet is 25% smaller than the previous one. Calculate the height of the third puppet and type in your calculation.
Project Idea 4

- Use domain reasoners to analyze step-wise solutions of math exercises
- Big set of solutions to an exercise
- Parser, analyser, strategies, …
Project Idea 5

- Generate constraints from grammars or datatypes to construct constraint-based tutors
Project Idea 6

Implement an interactive service that will test how well students understand JavaScript programs

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Project Idea 7

Implement an Elo ratings system on math practice data to track student and test item development

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Project Idea 8

- If you’re interested in functional programming and tutors for functional programming:
  - example/type-based program generation
  - contract propagation
  - property-based hint generation
  - ...

Johan Jeuring