CS Seminar

Adaptive Test Recommendation for Mastery Learning

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Abstract:

We tackle the problem of recommending tests to learners to achieve upskilling. Our work is grounded in two learning theories: mastery learning, an instructional strategy that guides learners by providing them tests of increasing difficulty, reviewing their test results, and iterating until they reach a level of mastery; Flow Theory, which identifies different test zones, frustration, learnable, flow and boredom zones, to determine the best k tests to recommend to a learner. We formalize the AdUp Problem and develop a multi-objective optimization solution that adapts the difficulty of recommended tests to the learner's predicted performance, aptitude, and skill gap. We leverage existing models to simulate learner behavior and run experiments to demonstrate that our formalization is best to attain skill mastery. We discuss open research directions including the applicability of reinforcement learning and the recommendation of peers in collaborative projects.

Biography:

Mr. Nassim Bouarour is a third-year Ph.D. student at Laboratoire d'Informatique de Grenoble (LIG), supervised by Prof. Sihem AMER-YAHIA and Dr. Idir BENOUARET. He holds a computer science engineering degree from Ecole Supérieure d'Informatique (ESI) in Algiers. He did his Master's internship at LIG, working on Contextual Recommendation Systems, after which he started his Ph.D. in 2020 to model users' behavior and track its evolution over time.

All are welcome!
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