**Critical Inquiry**

**CLIP: Continuous Location Integrity and**

**Provenance for Mobile Phones**

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# ABSTRACT

This paper introduces the design and evaluation of a scheme, CLIP to provide authentication for mobility trace and protect user’s privacy. The focus of the article is to design a low cost energy efficient system to keep track of continuous location integrity with a secure authentication model which safeguards from malicious users. The paper also proposes a light-weight spatial-temporal trust model to detect fake location proofs from collusion attacks. The paper is well written and this can be justified because it appropriately answers the research question of providing a secure protocol for continuous location proofs.

• **Computer Systems Organization ➝ Computer-Communication Networks ➝ Network Operations (C.2.3)**Additional Key Words and Phrases: Location Integrity, SLP, Mobile traceability

Artificial Intelligence learning environments have been used for many years in scientific experimentation. In this paper [1] the author introduces the crystal island intelligent game based learning environment, which has been under continual development through a series of learning technology investigations and laboratory and classroom studies over the past seven years. According to Shaw’s taxonomy [3], the research question is to investigate the technical problems of game based learning in context of Crystal Island. The author discusses narrative-centered tutorial planning, student affect recognition, student modeling, and student goal recognition.

Firstly, in narrative-centered tutorial planning, the author followed a quantitative approach [2] to evaluate the effectiveness of the induced narrative-centered tutorial planning. Three experimental conditions were created which included minimal guidance, intermediate guidance, and full guidance. The research results were on the basis of an empirical model. The experiment was conducted on a total of 150 eighth grade students completing the pre- and posttest measures. The research validation was done by analyzing the results.

Secondly, the author describes modeling student affect which is an important first step in designing affect-sensitive game based learning environments. The research question was to develop an efficient affect-detection system which can describe the student’s affective state related to their general goals during learning tasks, and how well these goals are being met. The research result was an empirical model learned from a collection of student interaction data. The research validation was done by analysis of data on a static Baysian network [1].

Thirdly, the author discusses the student knowledge modeling. The research question was to devise effective models of student knowledge in game based learning environment. To address the computational challenges in devising affective models, the research result developed by the author was a dynamic Baysian network approach to modeling user knowledge during interactive narrative experiences which is an analytical model [3]. The research validation was done by evaluation of the interaction of 116 eighth grade students from middle school with the Crystal Island environment.

Lastly, the author discusses the problem of student goal recognition. The research question was to recognize student goals and its sibling tasks like plan recognition and activity recognition. The type of research results is a Notation which is in the form of Markov logic networks (MLN) [1]. The research validation was done by comparing the performance of MLN model with one trivial and two nontrivial baseline models.

Additionally, the author also discusses the educational impacts of game-based learning environments. To investigate the relationship between learning and engagement in Crystal Island, an observational study was conducted involving 150 students. The students were given pre- and posttests on the science subject matter. The research result found a strong relationship between learning and engagement.

The results were validated by analysis of student’s learning gains, problem-solving performance and several engagement related factors.

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| Impact factor or acceptance rate of the venue. If you cannot find then see if you can find the MS Academic Search Field Rating | Impact Factor : 0.60  Source: <http://www.researchgate.net/journal/0738-4602_Ai_Magazine> |
| The h-index of the authors | James Lester – 41, Eun Young Ha– 10, Bradford Mott – 18, SY Lee – NA, Jonathan Rowe – 16, Jennifer L. Sabourin - 12 |
| What is the reputation of the author, lab, university | N/A |

I believe the paper offers a good understanding of intelligent game based learning environments. The research questions and its appropriate research results claim the paper to be of high impact.

The paper takes reference from “Emotion Sensors Go to School.”, “Detecting Learning Moment-By-Moment” [4 and 5]. This paper is cited by 9 authors, including “ [Data-Driven Alibi Story Telling for Social Believability](http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.431.6710&rep=rep1&type=pdf)”, "Encoding theory of mind in character design for pedagogical interactive narrative.", and "Improving Student Problem Solving in Narrative-Centered Learning Environments: A Modular Reinforcement Learning Framework."[6, 7 and 8]

In my opinion, the paper clearly defines its research question of impact of intelligent game based learning environments and its principal technical problems. The results are validated by the authors by the experiments and the analysis done on the research conducted with the Crystal Island learning environment.

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