

**TITLE OF INVENTION: ELECTRONIC PLATFORM FOR DETECTING BUGS IN SMART
CONTRACT CODE**

ABSTRACT

A computational method and an electronic platform for detecting bugs in smart contract code parses smart contract code to generate heterogeneous contract graph (HCG) where each node represents a semantic or syntactical segment of the smart contract code and each edge represents a control flow. Each node is processed with a tokenizer of a pretrained Large Language Model (LLM) that returns a vector of the embeddings for each of the tokens. A plurality of meta relations from the nodes, the edges or both defining how connected nodes interact are also extracted. These are then processed by a trained machine learning model, trained on training dataset comprising meta relations and vectors of correct smart contract code and buggy smart contract code to detect a presence of one or more bugs in the received smart contract code and for each bug estimate a location of the respective bug in the source code.

Figure 2A