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Tabulation of Strong Pseudoprimes

Tony Liu

Illinois Wesleyan University

Andrew Shallue, Faculty Advisor

Illinois Wesleyan University

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Oral Presentation O8.2

TABULATION OF STRONG PSEUDOPRIMES

Tony Liu and Andrew Shallue*

Mathematics Department, Illinois Wesleyan University

The Fermat Theorem in number theory tells us that if a number is prime, a condition must hold. However, the converse of this theorem does not always hold true. Therefore, there exists some set of “fake” prime numbers which satisfy the theorem even though they are composite. The elements in such a set are called pseudoprimes. By extending the base number beyond 2 and forcing an extra condition, the concept of strong pseudoprimes was developed. In this research project, computer programs written in C++ were used to implement the tabulation of all strong pseudoprimes given an upper bound and a base number. Timings were performed to compare the differences of the new implementation versus the existing implementation in terms of their algorithmic complexity.