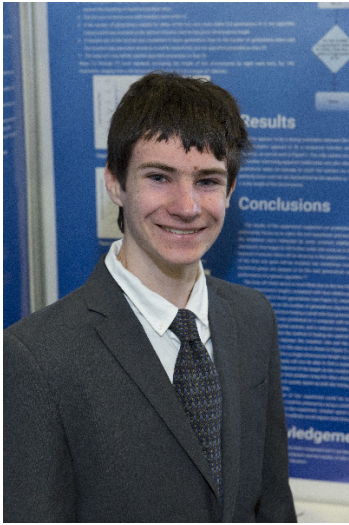


## CWSF 2018 - Ottawa, Ontario



### Jack Christensen

#### Optimizing Mutation Rates for Genetic Algorithms

**Challenge:** Information

**Category:** Intermediate

**Region:** Thames Valley

**City:** London, ON

**School:** Central S.S.

**Abstract:** Genetic algorithms are computer programs which are inspired by evolution, and are good at solving problems with many possible solutions. Random mutations are an important part of this process, but the probability of these mutations is an important parameter to get right. I investigated the best mutation rate for varying complexities of genetic algorithms, which will eliminate the time-consuming tuning processes needed to find it.

#### Biography

My name is Jack Christensen, and I am a grade 10 student at London Central Secondary School. I have been programming since I was 6 years old, and have always been passionate about technology. I enjoy rock climbing and making electronics projects, as well as programming of course, in my free time. I was first introduced to genetic algorithms two years ago at a hackathon, and have been interested in machine learning ever since. I have since dabbled in other genetic algorithm projects, but one issue I always had was finding the right mutation rate. For my science fair project I decided to solve this problem I, and many others, faced. In the future I would like to improve my methods in order to get more precise data, especially for the smaller lengths of simulated DNA. I would highly recommend science fair to any students remotely interested in science or technology, it is an amazing opportunity.

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