

## ESPC 2014 - Windsor (Ontario)



### Twesh Upadhyaya

#### Exploring Cellular Automata Music

**Défi:** Découverte

**Catégorie:** Sénior

**Région:** Simcoe County

**Ville:** Barrie, ON

**École:** Bear Creek S.S.

**Sommaire:** This project uses cellular automata to generate music. It explores the small- and large-scale patterns found in cellular automata and their parallels in compositions. Automata are simulated and various functions are tested to determine how best to extract music from grid states. The results demonstrate that it is possible to make listenable music from automata. This project has applications in the development of elevator music.

#### Biographie

My name is Twesh and I am a Grade 11 student at Bear Creek Secondary School in Barrie. This is my first time attending CWSF and I am looking forward to the experience. I am interested in math and science and I plan to go to university in a STEM field. I am the Grade 11 Representative on my Student Council and the co-vice-president on Music Council. I enjoy playing music and I am a percussionist in three school bands. I also play piano outside of school. My favourite sports are cross-country and basketball. I have a keen interest in mathematics and I have written numerous math contests. I am a member of my school's math club and I tutor in the Math Help Room. My project allowed me to combine two things I love, math and music, and I really enjoyed working on it. My advice to anyone doing a science fair project is to find a topic that really interests you and to try and combine different fields, as some of the most interesting discoveries happen at the intersection of two different disciplines.

#### Prix

#### Valeur

Prix d'excellence - Senior - Médaille de bronze Commanditaire: Société de gestion des déchets nucléaires	100,00 \$
Bourse d'admission de l'Université d'Ottawa Médaille de bronze, sénior ? Bourse d'admission de 1 000 \$ Commanditaire: Université d'Ottawa	1 000,00 \$
Bourse d'études de Western University Médaille de bronze - Bourse d'admission de 1 000 \$ Commanditaire: Université Western	1 000,00 \$
<b>Total</b>	<b>2 100,00 \$</b>