Pacific Institute *for the* Mathematical Sciences

PIMS Undergraduate Event

Ryan Hayward

University of Alberta

Friday, April 6, 2018
3:00 pm
(pre-lecture refreshments in DTB A514 @ 2:30 pm)

David Strong Building, room C116
University of Victoria

Twist and Turn: the Story of the Game of Hex

In 1942, the Danish engineer, poet, and designer Piet Hein invented a new board game and --- with a little help from his friends --- introduced it to readers of the Danish newspaper Politiken. The game became popular: within a year, 50,000 game pads sold.

In 1949 John Nash introduced the game to the Princeton math community, and in 1957 Martin Gardner passed it on to readers of Scientific American.

In this talk for a general audience, I will sketch some big moments in Hex history, ending with an outline of the ideas that make a nearly-superhuman computer Hex program tick.

Ryan Hayward received his B.Sc. and M.Sc. in mathematics from Queen's University (Kingston) in 1981 and 1982 and his Ph.D. in computer science from McGill University in 1987. His doctoral thesis, Two Classes of Perfect Graphs, was supervised by Vaclav Chvatal. From 1986 through 1989 he was assistant professor in the Department of Computer Science at Rutgers University, after which he held an Alexander von Humboldt fellowship at the Institute for Discrete Mathematics in Bonn for 1989-90.
From 1990 through 1992 he was assistant professor in the Department of Computing Science at Queen's University. From 1992 he was assistant and then associate professor in the Department of Mathematics and Computer Science at the University of Lethbridge, until in 1999 joining the Department of Computing Science at the University of Alberta, where he was promoted to professor in 2004.

He has supervised 13 graduate and 29 undergraduate students, some of whom later became university professors. His current research interests include algorithms for two-player games. His group (including at times Yngvi Bjornsson, Michael Johanson, Broderick Arneson, Philip Henderson, Jakub Pawlewicz, Chao Gao and Aja Huang --- later lead programmer of AlphaGo) has built the world's strongest computer Hex player, and has solved two 1-move 10x10 Hex openings and all smaller-board openings. With Bjarne Toft, he is writing a book on the history of Hex, to be published in 2018.

Many years ago, Ryan rode his bicycle from Vancouver to Lethbridge.