



Hamilton Institute

Patchy Solutions of Hamilton Jacobi Bellman Equations

Professor Art Krener

Friday, May 23rd, 2008

Abstract

The Hamilton Jacobi Bellman partial differential equation arises in the solution of optimal control problems. It is a first order, nonlinear, hyperbolic PDE that is very difficult to solve because of the curse of dimensionality. Moreover the solution may not exist in the classical sense, i.e., the solution may not be differentiable everywhere. We describe an approach to approximately solve some of these equations on patches where the solution is smooth.

Biography

Arthur J. Krener was born in Brooklyn, NY on October 8, 1942. He received his PhD degrees in Mathematics from the University of California, Berkeley 1971. Since 1980 he has been Professor of Mathematics at the University of California, Davis, and since 2002 he has been a Distinguished Professor of Mathematics. He recently retired from UC Davis to take up a position as Distinguished Visiting Professor at the Naval Postgraduate School, Monterey.

Professor Krener is a Fellow of the IEEE. His 1981 IEEE Transactions on Automatic Control paper with Isidori, Gori-Giorgi and Monaco won a Best Paper Award. The IEEE Control Systems Society chose his 1977 IEEE Transactions on Automatic Control paper with Hermann as one of 25 Seminal Papers in Control in the last century. He was a Fellow of the John Simon Guggenheim Foundation for 2001-2. In 2004 he received the W.T. and Idalia Reid from SIAM for his contributions to control and system theory. He also was awarded the IEEE Control Systems Society Bode lecture prize, and delivered the 2006 CDC Bode lecture.

His research interests are in developing methods for the control and estimation of nonlinear dynamical systems and stochastic processes.

Venue: Seminar Room, Hamilton Institute, Science Building,
NUI Maynooth

Time: 1.00 - 2.00pm (followed by tea/coffee)

Travel directions are available at www.hamilton.ie

