

## ビジュアルコンピューティングセミナー2017-01

下記の要領で、今年度第1回のセミナーを開催しますのでご参集ください。

日 時：平成 29 年 4 月 25 日（火） 13:00～14:30

場 所：慶應義塾大学矢上キャンパス創想館 DR9 (14-219)

<http://www.st.keio.ac.jp/access/index.html>

題 目：Geometric Algebra for Computer Sciences,  
Concepts and Implementation

講 師：Dr. Vincent Nozick

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JFLI, Tokyo, Japan



要 旨：Geometric algebras can be understood as a set of very intuitive tools to represent, construct and manipulate geometric objects. Among the various geometric algebras, this presentation will focus on those that may find some applications in computer sciences, namely Grassmann-Cayley algebra and the Conformal geometric algebra. This talk is an introduction in the domain, and thus no mathematical background is required.

The plan of the talk will focus on the following guideline: we will first introduce the main concepts of geometric algebra such as outer product, geometric product and multivectors. We will see how Grassmann-Cayley algebra can be seen as an extension of the projective geometry used in computer graphics and computer vision. Then we will introduce the main operations of the conformal geometric algebra. In the second part of the talk, we will present our results on algebra implementations, their complexity in time and memory. Finally, we will present some applications, especially in the field of computer sciences.

略 歴：Vincent Nozick get his PhD in 2006 at Universite Paris-Est Marne-la-Vallee (France) at the computer vision and computer graphics department of LIGM. In 2006, he has been laureate of a Lavoisier fellowship for a post-doc position at Prof. Hideo Saito laboratory, Keio University. Then, he was hired as a tenured "maitre de conferences" at Universite Paris-Est Marne-la-Vallee (France) from 2008. He served as the head master of the Imac engineer school from 2011 to 2013. He is currently in sabbatical at Japanese French Laboratory for Informatics (JFLI) at Tokyo University, NII and Keio University. In addition to computer vision applications, his current researches focus on both digital image forensics and geometric algebra.

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