

Empowering Novel Geometric Algebra for Graphics & Engineering Workshop @ CGI 2019 – 18th June 2019

Call for Papers

<http://www.cgs-network.org/cgi19/>

Since ACM SIGGRAPH2001 and 2003 conferences, there has been limited attention on the benefits of employing W. K. Clifford's geometric algebras (GA) in solving computer graphics and vision problems. In the meantime, the geometric algebra community focused on GA applications and greatly advanced it as an adequate and viable computing technology. The Workshops at CGI'2016 on "Geometric Algebra in Computer Science and Engineering" and at CGI'2017, 2018 on "Empowering Novel Geometric Algebra for Graphics & Engineering" began to bridge that gap.

Under the auspices of CGI'19 (17-20 June), ENGAGE (Empowering Novel Geometric Algebra for Graphics & Engineering) on **June 18th** in Calgary, Canada, will again engage in a multi-disciplinary approach from mathematics, applied to computer graphics, computer vision and general computer science fields where GA has strong potential to provide answers to existing mathematical problems.

GA is in a particularly well suited to allow cross-disciplinary solutions in software engineering as it provides an intuitive and insightful common denominator across mathematical disciplines that have often advanced application specific. Understanding GA enables us to relate distinct, seemingly incompatible paths by providing a common mathematical base. We invite original contributors in the form of full and short papers, which advance the state-of-the-art of the application of geometric algebra as well as of its computing technology in **topics related, but not limited to:**

- Feature Detection & Data Analysis
- LIDAR and Point Cloud Algorithms
- Scientific & Information Visualization
- Computer graphics rendering
- Computer animation and video processing
- Holographic optics & Holographic maps
- Geographic Information Systems
- Soundscape & Electromagnetic landscape Modelling
- Augmented and Virtual Reality
- Application of Clifford Fourier transforms and Clifford wavelets to 2D and 3D images, including color images
- Higher dimensional geometric algebras
- GA Computing and Quantum Computing
- GA hardware implementations
- GA for Artificial Intelligence
- GA for ubiquitous information processing
- GA for Big Data processing & visualization
- Other engineering/applied science applications using

Accepted full length ENGAGE papers will be published in the topical collection "Geometric Algebra for Computing, Graphics and Engineering" of the Journal Advances in Applied Clifford Algebras (AACA), published by Springer, and have to be orally presented at the conference. See the "Instruction for Authors" at AACA. Online paper submission at <https://www.editorialmanager.com/aaca/Default.aspx> has deadline of February 12th 2019. At the time of submission, authors must indicate the topical collection "ENGAGE 2019-Geometric Algebra for Computing, Graphics and Engineering".

It is further possible to submit papers directly to the CGI conference LNCS proceedings, both short and full, by March 25th deadline. All authors of accepted ENGAGE related papers will be invited either to an oral or poster presentation. For Springer LNCS CGI proceedings author instructions please refer to <http://www.cgs-network.org/cgi19/for-authors/>.

After the workshop, extended versions of well ranked short papers of the workshop proceedings will be invited for publication in Topical Collection "ENGAGE 2019-Geometric Algebra for Computing, Graphics and Engineering" of the journal Advances in Applied Clifford Algebras (AACA), published by Springer.

IMPORTANT DATES

Full AACA Papers: (10-15 pages, Latex using birkjour.cls)

- Abstract submission (ca. 200 words): **extended to February 15, 2019** to yuanlinwang@njnu.edu.cn
- Paper submission: **extended to February 15, 2019**
- Paper notification: *March 24, 2019*
- Camera ready papers due: *April 7, 2019*

Full and Short ENGAGE Papers: (to appear in Springer LNCS proceedings, full 8-12 pages and short 5-7 pages)

- Paper submission: **extended to April 7, 2019**
- Paper notification: **extended to April 25, 2019**
- Camera ready papers due: *May 03, 2019*

For **further information**, please contact one of the ENGAGE Workshop organizers:

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