

David Vanderhaeghe

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Master internship : Stroke based rendering by example

We are looking for a highly motivated Master student for a research internship.

- **Keywords:** Stroke Based Rendering, Painterly Rendering, Realtime Rendering, Computer Graphics
- **Advisor:** David Vanderhaeghe
- **Location:** Laboratoire IRIT, [STORM](#) research team, Université Paul Sabatier – Toulouse
- **Duration:** from February/March 2018, 5-7 months

The internship will take place in the IRIT laboratory, on the Université Paul Sabatier, campus of Toulouse. The recruited intern will be a full member of the research team, integrated with other team members, PhD students and permanent researches. He/she will participate to working groups, scientific seminars and other activities of our group.

Context

Stylized images are ubiquitous in visual communication for animated movies, commercials or scientific illustrations. These images leave room for the spectator's imagination and interpretation while conveying a strong and clear message. They bear the visual identity and ambiance of an art movement, an artist or a company. This is why it is essential for the content creator to be able to control the appearance — give his style — when creating a stylized image. Our graphic design research project focuses on stroke based rendering, an expressive rendering approach for the creation of stylized images. The goal is to understand which control structures are interesting for the creation of stylized images. These structures will provide new means of control that will adapt to the expertise, work habits, capacities and needs of content creators.

Objectives

The main topic of this master project is the definition and implementation of a automatic stroke based generator (fig 1). The generator style will be controlled by paint function to determine the shape of each stroke. Ideally these functions would be built by example given small user inputs. The selected student would have to study, adapt or invent new stroke based generation process, based on state of the art stroke based algorithms and propose example based control for this generator.



Fig 1. The painting on the canvas is composed of a set of strokes. Here stroke shape are depicted with on canvas and floating 3D shape to catch their arrangement.

Student profile

- Master student in Computer Science or Applied Mathematics
- Strong programming skills (C++), GPU programming (OpenGL)
- Basic knowledge on linear algebra and optimization algorithms
- Fluent English or French spoken

How to apply

Send your application to David Vanderhaeghe (see mail above)

- a complete CV,
- previous internship reports if available,

- reference name/email address (optional)