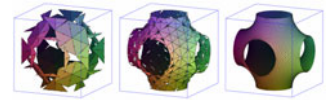


Information on Summer School Mathematical Visualization June 20 - 23, 2005 University Centre, Maubeuge – France



Programme:

The Summer School offers a concise initiation to the mathematical fundamentals of visualization techniques in various scientific fields. Theoretical courses will introduce basic mathematical techniques from differential and discrete geometry, topology and computation geometry. Modern visualization algorithms will be presented and demonstrated in a wide range of applications. Practical courses in the afternoon will provide guided hands-on experience to state-of-the-art visualization software. The School is a continuation of a Summer School held in June 2004.

Theoretical courses and interactive workshops will be taught in English. The material is designed for computer science and mathematics students, as well as students specialising in other scientific fields (physics, chemistry, biology, medicine) and professionals using visualization techniques. Numerous applications will be shown to give an informative overview of current visualization techniques.

Lecture abstracts:

G. Albrecht (*Université de Valenciennes et du Hainaut-Cambrésis*)

Courses will consist of an introduction to basic mathematical methods used in CAD software. They will thus deal with Bézier-de Casteljau and B-splines techniques and algorithms for curve and surface representation. The acquired theoretical notions will be illustrated with CAD software during workshops co-directed by Y. Mineur (Université de Valenciennes).

J.-D. Boissonnat (*INRIA, Nice*)

Courses will focus on an introduction to Voronoi and Laguerre diagrams, dual complexes, meshing and surface reconstruction. They will also deal with the various combinatorial and algorithmic issues these techniques entail.

H.C. Hege (*Zuse Institute Berlin*)

After a brief introduction to computer graphics, an overview of the field of scientific visualization will be presented. Then the notion of scalar, vector and tensor fields will be addressed, as well as the problem of geometry reconstruction from image data and the use of statistical shape models. Lectures will be illustrated by applications of visualization techniques used in various scientific areas such as biomedicine.

K. Polthier (*Zuse Institute Berlin*)

Courses will provide an introduction to discrete differential geometry and its applications to various algorithms in computer graphics. The mathematics will be introduced from scratch while some background in the field of computer graphics or differential geometry is assumed.

L. Vrancken (*Université de Valenciennes et du Hainaut-Cambrésis*)

Courses will focus on the notion of curvature, which is essential in differential geometry. They will cover, in great detail and with numerous significant examples, curves and surfaces embedded into Euclidian space.

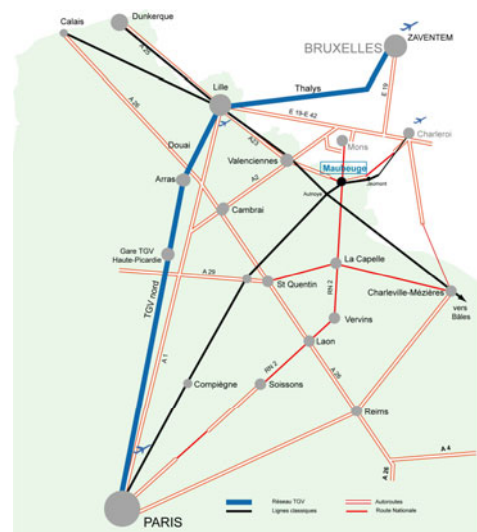
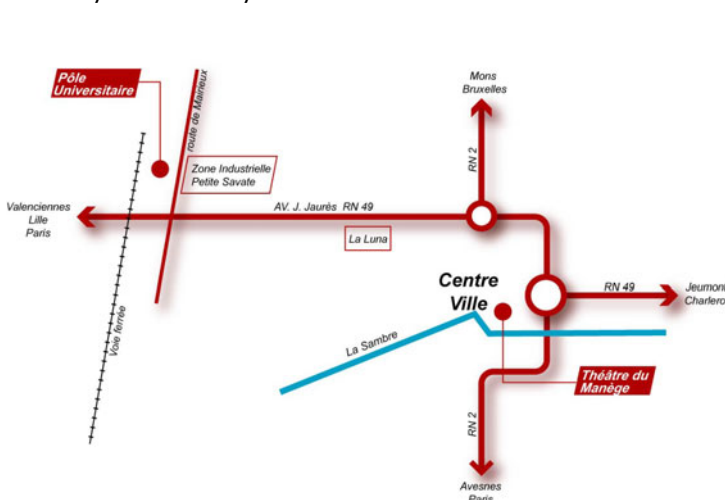
Classes in English

Number of participants: Limited to 40 students

Accommodation: Provided and paid for by Association pour la Création de la Cité des Géométries

Catering: at the participants' expense: - lunch: university cafeteria
- dinner: participant's choice

Access: Rail services Paris-Maubeuge and Lille-Maubeuge: transfer from and to the Maubeuge train station on Sunday 19th and Thursday 23rd or Friday 24th June.



Information and registration: cite-des-geometries@wanadoo.fr or +33 (0)3 27 67 76 51

Registration Form - Summer School 2005

Name:
Surname:
Date and Place of birth:
Postal address :
E-mail address :
Phone :
Fax:

Higher education curriculum:.....
.....

Current place (University, school ...):
Department (Laboratory):
University/school address:
E-mail address:
Phone:
Fax:
Supervisor:

Current subject of study (current field of study):

Goal (why are you following these courses):
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Reasons for interest in Summer School for Mathematical and Scientific Visualization:

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Experience in Visualization or related fields:

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Registration fees: 60 euros (guarantee to be returned at the end of the Summer School)

Payment by:

- cheque - recipient: Association pour la Création de la Cité des Géométries
- or
- wire transfer - Account number : 42559 00061 21027955406 31 IBAN : 76

Registration effective upon reception of registration fees + form

Send to :

*Association pour la création de la Cité des Géométries
14, rue du Commerce 59600 MAUBEUGE - France*

Or by e-mail: cite-des-geometries@wanadoo.fr
