Jacques KAISER

Resumé

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*Graduated Computer Scientist, under a **Working Holiday Visa**, applying for an **OpenGL Developer** position*

Education

2012–2013 **MSc. Computer Graphics with Honors**, *Strasbourg University*, France.
Computer science and science of images.

2009–2012 **BSc. Computer Science with Honors**, *Strasbourg University*, France.
Third year abroad in **Durham University**, England.

Experiences

Vocational

June–Oct. 2013 **JavaScript/WebGL Developer**, *Skimlab*, Strasbourg.
Skimlab is a brand new startup. The business model is to provide an easy online tool for modeling 3D printable objects.
The application is often referred as a ZSphere clone, because it relies on implicit surfaces in order to keep the user away from editing the mesh geometry directly.
My work there was to build a raytracer to improve the rendering quality, which was a complicated task due to the experimental status of **WebGL** itself. It involved a good knowledge of **WebGL**, THREE.js and the **graphic pipeline** in general.
Amongst added features:
- Set of shaders that emulate the materials we can print;
- Environment mapping;
- Point cloud render mode;
- Raytracer render mode;
- High quality image rendering (CPU Raytracing, for compatibility).

You can try the application on *www.skimlab.com*.

2012 **Individual tutor**, *Complétude*, Strasbourg.
Individual tutoring of mathematics for scientific high school students. I've been tutoring two students during one year, teaching them for around 3h a week each.

June–Aug. 2012 **Research intern/C++**, *iCube*, Strasbourg.

Development of an application for **mesh deformation** on a stereoscopic virtual reality platform. In order to be real-time, it has been built upon **CGoGN**, a powerful library that provides an efficient implementation of combinatorial maps, maintained by the iCube laboratory. The application worked through a **3D cursor**, the avatar of the user.
The application supports:

- Selection of objects of different natures:
  - Vertices;
  - Edges;
  - Faces;
  - Volumes;
- Moving selected objects;
- Moving a set of geometrically close objects (neighbors in space);
- Moving a set of topologically close objects (neighbors on the mesh);
- Local subdivision of the mesh (inherited from combinatorial map definition).

Developing on a virtual reality platform also added constraints such as screens synchronization and non-standard input methods.

June–Aug. 2011 **Research intern/C++**, *iCube*, Strasbourg.

Customizing interactive 3D cursors in order to solve positioning issue in virtual environments, which has been used in the mesh deformation app.
The positioning issue refers to the fact that, despite the improvements of 3D technologies, it remains hard to guess relative depth of objects in space.
I implemented solutions where the cursor gives hints on its position by scaling and orienting itself toward the closest object in space. We tried out many different shapes and updating methods, and we performed **statistical tests** to provide a formal proof of the improvement over standard cursors.

Personal projects

July–Nov 2013 **Created my own website**, *www.jacqueskaiser.com*.

Personal website that hosts few of my projects, and a more in depth description of myself. I relied on common startup technologies, such as node.js, heroku and **twitter bootstrap**.
As a work in progress, it is updated regularly.

June–Sept. 2013 **Startup Engineering class**, *Coursera*.

This class taught me the basics of creating and scaling a startup, along with the market research, and get me familiar with **industry best practices**.
As I was working at Skimlab in the meantime, I had the opportunity to instantaneously put into practice what I was learning.

May–June 2013 **Web Development class**, *Udacity*.

This class helped me to understand how the web works under the hood, down to basic HTTP requests.
Even when relying on high level abstraction offered by technologies such as google app engine, it may reveal significant to understand the big picture in order to track down bugs.

Jan.–March 2012 **Introduction to Parallel Programming class**, *Udacity*.

This class was about the fundamentals of parallel computing with the GPU and the CUDA programming environment.
It taught me how to use the GPU chip for general computations along with common parallel algorithms. Since, I'm able to identify whether an algorithm could have a huge performance gain by being redesigned and shipped to the GPU.

Special achievements

2011 **Finalist on a coding contest**, *Prologin*, Paris.
French national Computer Science contest, where contestants have two days to develop an artificial intelligence for a made up game. Contestants are then ranked with respect to the score of their program when they fight against other contestant's ones.

2009 **Animation Capacity Diploma**, *BAFA*, France.
This French diploma allows to work as a facilitator and watch after kids and teenagers. I worked in two different activity centers, for a total time of one month. Managing up to 14 kids by myself improved my authority.

Languages

French	**Mother tongue**	*Born in Strasbourg*
English	**Fluent**	*Lived one year in Durham, England*

Computer skills

Startup	JavaScript, CoffeeScript, Python	**Web**	Node.js, JQuery, Angular.js
Programming	C, C++, Assembly	**GPU**	OpenGL, WebGL, glsl, Cuda
Environment	Unix, Bash, Emacs	**VCS**	Git, Mercurial, Subversion
Softwares	Blender, Unity, Gimp		

Interests

Juggling	Up to four balls	**Tricking**	Taught me to exceed my limits
Ukulele	Easy access to the music world	**Slacklining**	Enhanced my balance and focus
Ultimate	Good for team play	**Dancing**	Improved leading skills
Woofing	Lived one month in Scotland	**Rollerskating**	Involved in a community

References

Maxime Quiblier, *max@skimlab.com*.
Trainee's supervisor, CEO at Skimlab.

Jérôme Grosjean, *grosjean@unistra.fr*.
Trainee's supervisor, lecturer and researcher at the iCube laboratory.

Basile Sauvage, *sauvage@unistra.fr*.
Lecturer and researcher at the iCube laborary.