

Projet ANR- 10-CHEX-014-01

Shape Analysis and Registration of People Using Dynamic Data

Programme CHEX 2010

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A IDENTIFICATION

Acronyme du projet	SHARED
Titre du projet	Shape Analysis and Registration of People Using Dynamic Data
Coordinateur du projet (société/organisme)	Hyewon SEO (LSIIT/Universite de Strasbourg)
Date de début du projet	15.12.2010
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Site web du projet, le cas échéant	-

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B DEMARRAGE DU PROJET

B.1 MOYENS MIS EN PLACE

(1) Recruitment of a PhD student

With the commencement of the project started, we have tried to recruit a PhD student, as the participation of a PhD student is foreseen from the very beginning of the project. However, January was not really a good time to recruit a PhD student, as most of the master students graduate either in February (most of the Asian countries like China, South Korea, and Japan) or in August (most of the European countries and North America). Those who graduate in February decide their doctoral schools in October, and those who graduate in August in June. We have searched for candidates through websites and email contacts, and received only a few applications from January to March, among them were two candidates we have selected and offered the PhD post. Unfortunately, they both have decided not to come to our university, after 1 month and 3 weeks of response time, respectively.

In May 2011, we have restarted the recruitment process and more systematically this time. We have placed our announcements on several websites that are visible from all over the world (nature jobs, international websites dedicated to PhD posts, etc), sent emails to every academic contact that was available to us. Consequently, we have received more than 170 applications this time, and we have selected 5 candidates among them. The 1st candidate, Mr. LUO from China, has accepted our offer and will start his PhD program starting from this September.

(2) Skin capture device

In SHARED we work on the dynamic data of people, thus acquisition of movement data from various subjects is a prerequisite. By the time of starting date of SHARED, we have had successfully installed a multi-view optical motion capture system in our lab, which allows capturing of movement data by recording the sequences of material points attached on the surface of the moving subject. While the effective capture volume and the capture quality had been rather limited by the small number of 5 cameras, some of the experimental data from the system have been intensively used for the first task of planned work, i.e. strain analysis.

As of July 2011, we are processing the purchase of 5 additional cameras to the system, i.e. a total of 10 cameras. From this extension we expect to acquire larger capture volume and better capture quality, which is definitely a plus to the commitment of the project.

B.2 DIFFICULTES RENCONTREES OU ATTENDUES

When the project started in mid-December, which was not good time to recruit local students, we have naturally thought of recruiting foreign PhD students. In order to increase the chance of recruiting a competitive one, we have put our announcement of PhD post in many different websites. Consequently, we have received more than 170 candidates from all over the world from May to June. Reviewing and processing all these applications implied that we had to understand and compare different academic systems, and that we had to individually contact several selected candidates for further inquiries or interviews, sometimes considering time differences. The negative side of this story is that, it turned out that we were spending too much time on this administrative process, which was something that was not foreseen. On the positive side, we learned a lot about different academic systems worldwide (Asia and South Asia, Central Europe, East Europe and Russia, Middle East, India, North Africa, North and South America), and, no further administrative task of this kind is needed until the end of the project.

B.3 COMMENTAIRES LIBRES

Commentaire du coordinateur

As initially planned, the first 6 months of the project have been devoted to the experimental data acquisition and the development of dynamic data analysis method. Using the recently installed optical motion capture system of 5 cameras, we have obtained a knee bending motion data and developed various numerical methods on strain analysis. The main technical challenge has been to ensure the consistency in the result as much as possible. At the time of writing this report we are finishing our first journal submission to 'IEEE Transaction on Information Technology in Biomedicine' out of the work we carried out so far.

In the coming 6 months, we are planning to extend the motion acquisition to other than knee bending motion, and test our numerical strain analysis method on these new data. In parallel, we will develop new, dynamic feature extraction and segmentation methods based on the results of the strain analysis.

Finally, we are considering hiring the second PhD student, instead of an engineer. The main tasks related to the second PhD thesis is 'Statistic atlas construction (task 3)' and 'Revision of registration (task 4)'.