IGG	**LSiiT**

SUBJECT: **Project «SHARED» Meeting**
                                     November 16, 2011
                                     9 :30 AM

I. <u>PURPOSE :</u>
   To discus SHARED project in some more detail, coordinate team work and knowledge transfer from other teams (Christian HEINRICH)

II. <u>PARTICIPANTS:</u>
   Christian HEINRICH
   Hyewon SEO, Frederic CORDIER, Jean-Michel DISCHLER, Guoliang LUO, Vasyl MYKHALCHUK

III. <u>TALKING POINTS :</u>
   A. Presentation of **SHARED Project** by Hyewon SEO: goal, description, timeline, deliverables, report, collaboration and dependencies

   B. Presentation on <u>building skin tension lines from 3D Scans/Motion Capture Data</u> (by Hyewon SEO)

   C. **Christian HEINRICH**. His team and particularly his PhD students work with high dimensional medical data (could be anything including *DMRI*, Shapes etc.) in order to reduce dimension of the data and to build a statistical model on top of it. That is used later for classification and analysis of the new data.

      For the dimension reduction *Isomap* method is used, since *PCA* is not able to give such robust results. Using *PCA* it is not possible to reduce dimensions to 2-5 without lost of valuable data (data goes to noise and has no meaning). For the regression *Nadaraya-Watson Kernel* method is used (kind of weighted regression). With *N-W Kernel* it is possible to do an extrapolation in regions with missing data.

      Christian does not consider temporal component and has not made any attempts to apply aforementioned statistical method for registration (TO BE VERIFIED: there are also no reported works on this subject)

   D. Felix (former PhD student of Christian) may share some knowledge or code if needed. Felix is currently in in Grenoble and he is busy with project concerning building Brain Networks for consciousness states. Christian is also partly involved in this project.

   E. **Python vs Matlab**. It might be that Python becomes a new mainstream (to be investigated). Main features of Python: free, there are many packages available, share same functionality with Matlab

   F. Recommended **book**: HASTIE,TIBSHIRANI,FRIEDMAN. <u>ELEMENTS OF STATISCTICAL LEARNING</u>

   G. PhD thesis (2004-2005) of T. Vik might be of interest to us. He was supervised by Fabrice HEITZ

   H. Classification course by Piere Charbonel (**LCPC**) (this point is for Guoliang, Vasyl)

IV. **NEXT PROJECT MEETING** approx. Feb 2012:
   i. Share knowledge
   ii. Share bibliography
   iii. Share code
   iv. Present our work on LLE? (Guoliang)