

レポート 7

My research topic is the improvement of face expression recognition accuracy based on 3D model（三次元顔面モデルを用いた表情認識精度の向上）. In order to make this research go smoothly, we consider the following process is necessary.

- Task analysis process ミッション分析プロセス

The direction of the research should identify the stakeholders and their needs from the current state of the expression recognition field and the problems to be solved. It also envisages what problems will be solved by the results of the research, i.e. the value of the research and the area of application of social reduction.

- Stakeholders' needs and the needs definition process ステークホルダのニーズおよび要求定義プロセス

A more specific understanding of the main algorithmic research on expression recognition and the refined needs of the stakeholders is used to determine the direction and feasibility of the research.

- Architecture definition process アーキテクチャ定義プロセス

It is important to have a thorough understanding of the topic you are researching.

- ① Stakeholders for expression modeling
- ② Personal information security of face data
- ③ The domain of expression recognition applications
- ④ Related research

It is important to have an overall understanding and grasp of the research and to ensure that the research does not deviate from the established track once it formally begins. Most importantly, this is the only way to clarify what you are researching, whether this direction is really right for you, and to grasp the value of your research and the value to society.

- Design definition process 設計定義プロセス

- ① Obtain open source face database
- ② Pre-processing of face data; light compensation, grayscale transformation, histogram equalization, normalization, geometric correction, filtering, and sharpening of face images, etc.
- ③ Extraction of facial expression features
- ④ expression classification and evaluation of the experimental results of recognition accuracy.

Only after the design definition process is completed, the research plan can be implemented to ensure that the correct results are obtained at each point in time.

- Systematic analysis process システム分析プロセス

The creation of the research plan, its schedule, the time spent and costs, the feasibility, risk management. The quality of the final results must be analyzed and evaluated to ensure that they meet expectations.

Based on the analysis report, the research plan is improved when appropriate.

- Knowledge Management Process 知識マネジメントプロセス

The research process generates a large amount of knowledge, including codes, research records and experimental records, which must be well stored and managed. The face data used in the research may also contain sensitive information, such as personal privacy, and should be stored properly to avoid significant damage due to leakage.

