

SUMMARY OF Ph.D. DISSERTATION

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<p>Title</p> <p>A Study on Automatic Shooting Systems based on the Film Language</p>		
<p>Abstract</p> <p>Digital multi-channel broadcasting and high speed Internet have increased demands for video contents. In order to reduce the cost for camera operators, various automatic shooting systems have been presented. However, most of the systems shoot scenes with simple and task-oriented camerawork. Such video contents tend to be monotonous or hard to understand. To produce more attractive video contents, direction-oriented camerawork is required.</p> <p>The objective of this study is to shoot scenes automatically by multi-camera cooperation based on the film language, which is the 100-year-old technique about film direction. This study classifies the scene into two categories; “a scene without scenario” and “a scene with scenario”. Then technical issues in shooting each scene effectively are addressed.</p> <p>This doctoral dissertation proceeds as follows. Chapter 1 describes the background and objective of this study.</p> <p>Chapter 2 describes the related work and the concept of this study.</p> <p>Chapter 3 describes a face-to-face meeting scene as an example of the scene without scenario. This chapter focuses on reducing uncomfortable view point change at shot-switching, and proposes an automatic shooting method to shoot current speakers easily comprehensible based on the shooting theory called “imaginary line”. The result of a comparative experiment with manually switched video image showed the validity of the proposed method.</p> <p>Chapter 4 describes an orchestral performance scene as an example of the scene with scenario. This chapter focuses on that it is complicated task to plan appropriate camerawork manually, and proposes an automatic camerawork planning method using the orchestral score as a scenario. The variation of both shooting subject and shot composition are considered in the camerawork. The result of an experiment showed that the camerawork planned by the proposed method was effective in video editing compared with the camerawork planned by other method.</p> <p>In Chapter 5, a series of studies are summarized and the future works are described.</p> <p>Through these studies, the common objective “automatic shooting based on the film language” was applied to two scenes where the features are quite different. The result of each study showed the effectiveness on the improvement of video representation.</p>		