要　旨（英文）

専 攻 名	電気・化学	氏　　名	江原　和
学籍番号	2181212		

主　　題	日常生活中の生体情報計測と解析による心身状況の把握に関する基礎的検討

要　旨

In recent years, the number of patients seeking medical care due to mental illness has increased significantly. In particular, the number of patients with depression has increased significantly, with 58% of workers experiencing high levels of stress related to their current work or professional life. Excessive stress not only increases the risk of depression and other mental illnesses, but can also cause a variety of other ailments, including a weakened immune system, increased risk of infection, and damage to the circulatory and digestive systems. Daily hustles are often caused by trivial events, and their causes often disappear after a short period of time. There are several causes for the occurrence of daily hustles, including characteristic and environmental problems, but none of them are easy to be aware of. Therefore, the stress caused by the daily hustle is difficult to be perceived by the individual until the symptoms caused by the daily hustle appear, and it is possible that the symptoms are worsening or that the daily hustle is negatively affecting the individual's daily life without his/her being aware of it. Therefore, it is thought that measuring stress from daily biological measurements and managing health from there will be useful in preventing mental illness and improving the quality of life. Currently, stress evaluation methods using heart rate variability are being studied, and stress measurement using wearable devices is also being investigated. To enable continuous stress measurement, the measurement device must be wearable, and stress assessment must be performed at short time intervals in addition to constant measurement.

In this study, we examined methods for evaluating transient stress in daily life with the aim of identifying daily hustles and situations in which they are likely to occur. In my master's research, I constructed a system to acquire instantaneous heart rate from a wearable device and analyze it and examined machine learning methods and features suitable for stress evaluation. In the identification of the stress state, some subjects can be identified with a high rate of correct answers, and there is a possibility that the stress state can be detected from the instantaneous heart rate acquired by the wearable device. In the estimation of stress level, a positive correlation was observed between the results of subjective evaluation of stress and the results of estimation for all subjects, suggesting that there is a relationship between the degree of stress and the instantaneous heart rate acquired, and that this tendency may be captured by the method used in this study.