

## List of Dissertation Abstract (Department of Information Media and Environment Sciences)

Name	Supervisor	Title	Abstract
YAMAKAWA Masahiko	OKAJIMA Katsunori	A study on brightness perception and photophobia in migraine involving melanopsin-expressing retinal ganglion cells	<p>It has been clarified in physiology that the newly discovered melanopsin-expressing retinal ganglion cells are involved in acquiring visual information, although the photoreceptors, cones and rods, were played this role. Therefore, we investigated that the projection mechanism to the visual cortex about the research theme of "brightness perception" and "photophobia in migraine" by focusing on the differences in function against cones and rods. It was revealed that melanopsin-expressing retinal ganglion cells are involved in the acquisition of absolute intensity information in the visual environment in psychophysics experiment, and the photophobia in migraine in brain-imaging experiment. In the future, it is necessary to consider the function of melanopsin cells in addition to cones and rods in understanding visual information processing.</p>

<p>SASAKI Takayuki</p>	<p>MATSUMOTO Tsutomu</p>	<p>Defense Against Cyber Attacks Based on Analysis of Relationship Between Attackers' Motivation and Activities</p>	<p>Cyber attacks against IT systems and cyber-physical systems are reported every day. There are certain motivations behind the attacks. Specifically, there are attacks for profit, for technical challenges, for political claims, and so on. To advantageously proceed with a cat-and-mouse game of attack and defense, understanding of the attackers' motivation is essential. Considering the development of defense mechanisms, knowledge of attackers' motivation can be used to deploy effective preventive measures. Moreover, to address the root cause of the attacks, it is desirable to reduce their motivation. In this dissertation, to mitigate the risks of cyber attacks, we clarify the attackers' motivation, then propose an information-sharing method across organizations and a countermeasure against Distributed Denial of Service (DDoS) attacks for profit.</p>
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HARA Satoshi	MATSUMOTO Tsutomu	A Study on Analysis of Persistent Malware Infection Targeting IoT Devices	<p>This dissertation first focus on malware persistent infection among the attacks targeted at specific IoT devices.</p> <p>Firstly, we focus on the characteristics and functions of IoT devices and analyze the conditions for persistent infection of malware on IoT devices. Secondary, we proposes a malware dynamic analysis method using real IoT devices. Finally, we proposes a dynamic analysis method using a "composite directory sandbox" that has a union of the directory structure of many IoT devices to analyze malware that changes the behavior in a specific IoT device.</p>
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