

Work to be Awarded the FY2013 JSAI Incentive Award

Theoretical and Experimental Studies on Frog Choruses Based on the Phase Oscillator Model and Sound-Imaging Method

Ikkyu Aihara, Hiromitsu Awano, Takeshi Mizumoto, Yoshiaki Bando, Takuma Otsuka, Kohei Nagira, and Hiroshi G. Okuno

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Ikkyu Aihara (Fellow (PD), the Japan Society for the Promotion of Science)

Completed a doctoral course in the Graduate School of Science, Kyoto University in 2011 (Ph.D in Science); Former recipient of the JSPS Research Fellowship for Young Scientists (DC1).

Hiromitsu Awano (Ph.D candidate in the Department of Communications and Computer Engineering, Graduate School of Informatics, Kyoto University)

Recipient of the JSPS Research Fellowship for Young Scientists (DC1); Completed the above master course in 2012 (MS in Informatics).

Takeshi Mizumoto (Researcher, Honda Research Institute Japan Co., Ltd.)

Completed a doctoral course in the Graduate School of Informatics, Kyoto University in 2013 (Ph.D in Informatics); Former recipient of the JSPS Research Fellowship for Young Scientists (DC2).

Yoshiaki Bando (Master student in the Department of Intelligence Science and Technology, Graduate School of Informatics, Kyoto University)

Advanced placement in 2013 into the master's course, Undergraduate School of Informatics and Mathematical Science, Faculty of Engineering, Kyoto University.

Takuma Otsuka (Researcher, NTT Communication Science Laboratories)

Completed a doctoral course in the Graduate School of Informatics, Kyoto University in 2014 (Ph.D in Informatics); Former recipient of the JSPS Research Fellowship for Young Scientists (DC1).

Kohei Nagira (Rakuten, Inc.)

Completed a master's course in the Department of Intelligence Science and Technology, Graduate School of Informatics, Kyoto University in 2013 (MS in Informatics).

Hiroshi G. Okuno (Professor (Fixed-term), Graduate Program for Embodiment Informatics, Faculty of Science and Engineering, Waseda University)



Graduated from the Department of Pure and Applied Sciences, College of Arts and Sciences, the University of Tokyo in 1972. Ph.D in Computer Science

- Achievement for the award

The authors of this paper developed a sound-visualizing device named Frog Firefly based on robot audition technology and used the devices to analyze frog choruses to obtain a new finding that is important from an ethological perspective. According to their finding, frogs form groups in a field, and each of the groups choruses in turn. In the research, the authors used the phase oscillator model to create a model of the frog choruses. Combining the knowledge on robot audition that has been cultivated to date, primarily by the Special Interest Group on AI Challenges, with the field of ethology has led to truly important results and led to unique and innovative research. Research relevant to this paper has been published in *Scientific Reports*, published by the Nature Publishing Group, and its significance from an ethological point of view has been acknowledged worldwide. From an engineering perspective, this research is an excellent example of expanding technologies created based on fundamental research into new research areas, and therefore we recommend it for the JSAI Incentive Award.

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Source: FY2013 JSAI notification