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Refereed Proceeding Papers

[j-huang-01:2012] K. Thongam, J. Huang, and S. Debnath. Path planning of mobile robot with neuro-fuzzy technique. In *Proc. 12th Int. Conf. Intelligent Systems Design and Application*, pages -. IEEE, Nov. 2012.

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[markov-01:2012] T.Matsui K.Markov. Non-negative Matrix Factorization Based Self-Taught Learning With Application To Music Genre Classification. In *In Proc. IEEE Int. Workshop on Machine Learning for Signal Processing*, pages 1–5. IEEE, Sep 2012.

Availability of large amounts of raw unlabeled data has sparked the recent surge in semi-supervised learning research. In most works, however, it is assumed that labeled and unlabeled data come from the same distribution. This restriction is removed in the self-taught learning approach where unlabeled data can be different, but nevertheless have similar structure. First, a representation is learned from the unlabeled data via non-negative matrix factorization (NMF) and then it is applied to the labeled data used for classification. In this work, we implemented this method for the music genre classification task using two different databases: one as unlabeled data pool and the other for supervised classifier training. Music pieces come from 10 and 6 genres for each database respectively, while only one genre is common for both of them. Results from wide variety of experimental settings show that the self-taught learning method improves the classification rate when the amount of labeled data is small and, more interestingly, that consistent improvement can be achieved for a wide range of unlabeled data sizes.

Ph.D and Others Theses

[j-huang-02:2012] Yuki Izumi. Sound signal generation by analysis of narrow band instantaneous frequencies - analysis and generation of random signals -, University of Aizu, 2012.

Thesis Advisor: Huang, J.

[j-huang-03:2012] Shiori Endo. Sound signal generation by analysis of narrow band instantaneous frequencies - analysis of the phase differences of oscillation signals -, University of Aizu, 2012.

Summary of Achievement

Thesis Advisor: Huang, J.

[j-huang-04:2012] Chika Kawamura. Frontal localization using headphones with modified frequency characteristics and reverberation, University of Aizu, 2012.

Thesis Advisor: Huang, J.

[j-huang-05:2012] Toru Kibushi. Elevation localization in the side area using two near loudspeakers with different level changes in subbands, University of Aizu, 2012.

Thesis Advisor: Huang, J.

[j-huang-06:2012] Rina Yabuki. Elevation localization in the back area using two near loudspeakers with different level changes in subbands, University of Aizu, 2012.

Thesis Advisor: Huang, J.

[j-huang-07:2012] Tomomi Sugasawa. Evaluation of reverberations measured in different environments, University of Aizu, 2012.

Thesis Advisor: Huang, J.

[j-huang-08:2012] Misaki Naito. Evaluation of the effect of loudness for elevation localization using two near loudspeakers, University of Aizu, 2012.

Thesis Advisor: Huang, J.

[j-huang-09:2012] Teruhiko Suzuki. Master Thesis: Elevation localization using two near loudspeakers with different level changes in subbands, University of Aizu, 2012.

Thesis Advisor: Huang, J.

[j-huang-10:2012] Noriko Watanabe. Master Thesis: Evaluation of the effect of loudness for elevation localization, University of Aizu, 2012.

Thesis Advisor: Huang, J.

[j-huang-11:2012] Xuan Guo. Master Thesis: Evaluation of reverberations measured in different environments and different positions, University of Aizu, 2012.

Thesis Advisor: Huang, J.