



CODESWAN



"COAT"NET

CODESWAN/COATNET-2 Joint Steering Committee Meeting (Minutes)

- COperative DEcision Making based on Slepian-Wolf/multiple Access wireless Network –
 - COnnect All by Turbo NETworks-2 (COATNET-2) -

Date: March 26-27

Venue: Conference Room, Graduate School of Informatics, Kyoto University

http://www.kyoto-u.ac.jp/ja/access/campus/map6r_y.htm

The meeting place is **in buildings 67**, but its entrance is difficult to find.
Follow the information presented on the stand map set up in front of building 63.

Program:

March 25 (*evening*): Friendly Gathering (unofficial)

March 26: Technical Sessions

10:00 *Welcome* Prof. Tad Matsumoto (JAIST)

10:10-10:30 *About the Projects, Expectations for the STC Members*

Prof. Tad Matsumoto (JAIST)

10:30-11:00 *Effect of Convolutional Code Choice on Turbo Equalization with Faster-than-Nyquist Signaling*

Mr. Mirza Golam Kibria (Kyoto University)

- It looks like not directly connected to the scope of this project. However, in the case we are in a situation where we have to perform over sampling, his results are useful.
- Exploitation of multi-dimension correlation including that due to over sampling is suggested.

11:00-11:30 *Joint Channel-and-Network Coding Using EXIT Chart Aided Relay Activation*

Prof. Shinsuke Ibi (Osaka University)

- Make reasonable assessments/reasoning between system level value recognition and theoretical ones.
- Clarify the tradeoff between rate loss and speed of convergence, assuming the massive existence of potential relay (handset), including relay selection.
- Information theoretic analysis in comparison with EXIT chart, for theory-practice comparison.

(Lunch Break)

13:00-13:30 *Distributed coding for non-binary correlated sources*
Prof. Motohiko Isaka (Kwansei Gakuin University)

- Jan likes it. Show scenario where non-binary alphabet is advantageous compared to binary case.
- Give analysis/evaluation from the viewpoint of JSCC.
- Applicability to PLNC/Correlation network should be clarified.
- Consideration on imperfect side information is suggested.

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3:30-14:00 *On the Duality of Source and Channel Correlation: Slepian-Wolf Relaying Viewpoint*

Prof. Tad Matsumoto (JAIST)

- Clarify the reason why Combining after decoding is better than combining before decoding.
- The point where the decay of equivalent diversity order should be analysed mathematically analysed.
→ Use the result for relay selection.
- Seek for the adaptivity using the utility function based on SW outage as optimization criterion/constraints.

14:00-14:30 *Distributed Joint Source-Channel Coding for Relay Systems Exploiting Source-Relay Correlation and Source Memory*
Mr. Xiaobo Zhou (JAIST)

- Consider other correlation model for source-relay link. Use of hidden Markov model is possible.
- Use of hidden Markov decoder in VI loop is suggested.

14:30-15:00 *Research Plan: Wireless GREAT-CEO*
Mr. Xin He (JAIST)

- Consider scheduling and evaluate the influence of schedule among the sub-CEO's (Layered CEO networks)
- Full scale factorgraph model with flooding scheduling (All noted in the graph, and updating at all the nodes each iteration, no scheduling included. This is related also PIC).
- Be careful when comning LLRs over the vertical lines.

(Break)

15:30-16:00 *Very Low Rate BICM-ID based IDMA*
Mr. Ormsub Soullisak (JAIST)

- Difference in rate region between Gaussian codebook and CCC is of interest.
- Someone should be assigned to succeeds the results so that it can be pplication to relay as well as in multipath realistic channels.
- In different SNR for each user should achieve better performance in MUD. Someone should do it.

16:00-16:30 *A Multiple Access Relay Allowing Intra-Link Errors*
Mr. Pen Shun Lu (JAIST and University of Oulu)

- Diversity order in FER shown in the figures when P_e is not zero is question mark. How about BER to clarify the discrepancy in diversity order from that expected.

16:30-17:00 *Iterative Spatial Demapping for Two Correlated Sources over Fading Multiple Access Channel*
Prof. Khoirul Anwar (JAIST)

- Validity of projection in the case signal is defined in the complex domain has not been proven.
- Analyze complex MAC region in fading should be analyzed when using two dimensional.
- Water filling instead of channel inversion should achieve larger rate sum. This technique should be sought for.

General Comments

- Convergence into DIWINE problems: Combining the techniques for correlated JSCC in the context of WNC.
- Distortion/rate tradeoff in the context of the above.
- Practical applications/real use of the techniques should be demonstrated, such as in 2D correlation-exploited 2D Turbo.
- Complexity, power consumption-performance tradeoff at the "handset side" should be considered.

Evaluation

CODESWAN: Somewhere between Good shape and More than expected.
COATNET-2: in Good shape

Next Meeting

Some day between Feb 25 to March 15.
At Kobe.

AoB