YAYASAN BRATA BHAKTI JAWA-TIMUR
UNIVERSITAS BHAYANGKARA SURABAYA
LEMBAGA PENELITIAN DAN PENGABDIAN KEPADA MASYARAKAT
(LPPM)
Jalan Ahmad Yani 114 Surabaya, Telp. 031-8285602, 8291055, Fax. 031-8285601

SURAT KETERANGAN

Nomor : Sket/ 557II/2023/LPPM/UBHARA

Yang bertanda tangan dibawah ini :

Nama : Drs. Heru Irianto, M.Si
NIP : 9000028
NIDN : 0714056102
Jabatan : Kepala Lembaga Penelitian dan Pengabdian Kepada Masyarakat (LPPM) Universitas bhayangkara Surabaya

Dengan ini menerangkan bahwa dosen prodi Teknik elektro Universitas Bhayangkara Surabaya atas nama **Dr. Ir. Saidah, MT** benar telah melakukan kegiatan :

1. Menjadi Reviewer pada Seminar Internasional **2020 International Conference on Smart Technology and Applications (ICoSTA)** yang **terindeks IEEE**, dengan judul artikel
   1. Characterization of Magnetic Induction Coil Sensor for Void Detection in Steel Plate
   2. Capacity Analysis for Hybrid Beamforming MIMO Channel using Discrete Cosine Transform and Antenna Selection,

   pada **18 Februari 2020 dan terbit di IEEE XPLORE pada 27 April 2022.**
2. Telah melakukan korespondensi review melalui email, bukti pendukung artikel yang terbit dan sertifikat adalah benar sudah dilakukan oleh yang bersangkutan serta sudah dilampir kan bersama surat ini.

Demikian surat keterangan ini dibuat untuk kepentingan kelengkapan pengusulan Guru Besar.

Surabaya, 31 Januari 2023
Kepala LPPM

Drs. Heru Irianto, M.Si.

PADA TAHUN 2020 MENJADI REVIEWER PADA SEMINAR INTERNASIONAL “ICOSTA” TERINDEKS IEEE

Ubhara Surabaya

Saidah Ubhara <saidah@ubhara.ac.id>

[ICoSTA 2020] Review for paper #1570610828 assigned

icosta2020@ubhara.ac.id <icosta2020=ubhara.ac.id@edas.info> 18 Februari 2020 pukul 03.33
Balas Ke: icosta2020@ubhara.ac.id
Kepada: S Saidah <saidah@ubhara.ac.id>
Cc: icosta2020@ubhara.ac.id

Dear Dr. S Saidah:

The paper "Characterization of Magnetic Induction Coil Sensor for Void Detection in Steel Plate" has been submitted to 2020 International Conference on Smart Technology and Applications (ICoSTA). It has the following abstract:

In this study, characterization of magnetic induction coil sensor for detecting void within the steel plate has been conducted. The aim of this study is to evaluate performance of coil designs in measuring some objects accurately. Experiments were performed by varying the frequency from 10 kHz to 2.5 MHz with input voltage of 20 V. The results obtained show that all designs can distinguish air and normal steel objects by amplitude measurements. Only design 3 and 4, however, can distinguish the normal and defect steels. Design 3 can differentiate them at the frequency of 250 kHz, while design 4 can distinguish at the frequency of 50 kHz. From phase different measurements, no significant differences are presented by all designs.

We believe that this paper falls within your area of expertise and would appreciate if you could serve as the TPC member responsible for handling this paper. Please confirm that you have received this assignment and indicate whether you accept at

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Thanks again for your help.

ICoSTA committee
2020 International Conference on Smart Technology and Applications (ICoSTA)
Conference Website : http://icosta.ubhara.ac.id
Email: icosta2020@ubhara.ac.id

Characterization of Magnetic Induction Coil Sensor for VOID Detection in Steel Plate

Publisher: IEEE

Mahfudz Al Huda ; Didied Haryono ; Harisma Nugraha ; Annisa Nur Fitriani ; Warsito Pur… All Authors

Abstract: In this study, the characterization of the magnetic induction coil sensor for detecting void within the steel plate has been conducted. The study aims to evaluate the per... **View more**

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Abstract:

In this study, the characterization of the magnetic induction coil sensor for detecting void within the steel plate has been conducted. The study aims to evaluate the performance of coil designs in measuring some objects accurately. Experiments were performed by varying the frequency from 10 kHz to 2.5 MHz with an input voltage of 20 V. The results obtained show that all designs can distinguish air and normal steel objects by amplitude measurements. Only designs 3 and 4, however, can distinguish the normal and defect steels. Design 3 can differentiate them at the frequency of 250 kHz, while design 4 can distinguish at the frequency of 50 kHz. From different phase measurements, no significant differences are presented by all designs.

Published in: 2020 International Conference on Smart Technology and Applications (ICoSTA)

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Conference Location: Surabaya, Indonesia

Contents

Ubhara Surabaya

Saidah Ubhara <saidah@ubhara.ac.id>

[ICoSTA 2020] Review for paper #1570613216 assigned

icosta2020@ubhara.ac.id <icosta2020=ubhara.ac.id@edas.info> 18 Februari 2020 pukul 03.45
Balas Ke: icosta2020@ubhara.ac.id
Kepada: S Saidah <saidah@ubhara.ac.id>
Cc: icosta2020@ubhara.ac.id

Dear Dr. S Saidah:

The paper "Capacity Analysis for Hybrid Beamforming MIMO Channel using Discrete Cosine Transform and Antenna Selection" has been submitted to 2020 International Conference on Smart Technology and Applications (ICoSTA). It has the following abstract:

User expects a new level of experience for 5G services. One of them is high data rates that can deliver smooth high definition streaming in mobility. There has been so much efforts to increase throughput per user. The Massive Multiple Input Multiple Output (MMIMO) is one of technology enabler in 5G. However, implementing MMIMO requires large number of antennas and costly Radio Frequency (RF) chains as well. To reduce the large number of RF chains, beamforming technique can be considered. This paper proposes a hybrid beamforming using Discrete Cosine Transform (DCT). We put the DCT matrix in front of RF chain. Moreover, the transmitted signals may experience correlation due to adjacent antenna spacing that can deteriorate the capacity. Hence, we propose antenna selection to maintain the capacity. We conduct simulations over thousand number of channel realizations, we show that the capacity increases by using DCT rather than DFT. Furthermore, the antenna selection performs wel!
I over the random selection.

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Thanks again for your help.

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Conference Website : http://icosta.ubhara.ac.id
Email: icosta2020@ubhara.ac.id

Capacity Analysis for Hybrid Beamforming MIMO Channel using Discrete Cosine Transform and Antenna Selection

Publisher: IEEE

Ajib Setyo Arifin **All Authors** •••

Abstract: The user expects a new level of experience for 5G services. One of them is high data rates that can deliver smooth high definition streaming in mobility. There have been ... **View more**

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Abstract:
The user expects a new level of experience for 5G services. One of them is high data rates that can deliver smooth high definition streaming in mobility. There have been so many efforts to increase throughput per user. The Massive Multiple Input Multiple Output (MMIMO) is one of the technology enablers in 5G. However, implementing MMIMO requires a large number of antennas and costly Radio Frequency (RF) chains as well. To reduce the large number of RF chains, the beamforming technique can be considered. This paper proposes hybrid beamforming using a Discrete Cosine Transform (DCT). We put the DCT matrix in front of RF chain. Moreover, the transmitted signals may experience correlation due to adjacent antenna spacing that can deteriorate the capacity. Hence, we propose an antenna selection to maintain the capacity. We conduct simulations over a thousand number of channel realizations. We show that the capacity increases by using DCT rather than DFT. Furthermore, the antenna selection performs well over the random selection.

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Contents

The demand for higher capacity drives the evolution of wireless communication networks. The higher capacity improvement has a market name for 5G networks as enhanced Mobile Broadband (eMBB). There are many techniques to improve capacity such as: Orthogonal Frequency Multiplexing Access (OFDMA), Massive Multiple Input Multiple Output (MMIMO) antenna system, high order modulation, millimetre waves, and beamforming. The MMIMO antenna system multiplies the number of capacities by providing higher spatial degrees of freedom [1] [2]. Moreover, MMIMO can create a highly selective beam for user localization [3] [4]. The high selective beam requires advanced signal processing and beamforming at the baseband domain. The baseband beamforming is also well known as digital beamforming. Digital beamforming requires a Radio Frequency (RF) chain in all antennas resulting in high cost and high-power consumption. The other beamforming techniques that provide relatively low cost, low complexity, and low power is band pass beamforming. The band pass beamforming is well known as the analog beamforming. The analog beamforming has a simple implementation, using phase shifter, antenna lens, and switches at the cost of low spatial degrees of freedom and high user interference [5].

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International Conference on Smart Technology and Applications 2020

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CERTIFICATE

This certificate is presented to :

Dr. Saidah

as REVIEWER

for outstanding contribution to The International Conference on Smart Technology and Applications 2020 held in Surabaya, Indonesia.
Topic :
"Empowering Industrial IoT by Implementing Green Technology for Sustainable Development"

on 20 February 2020 at Mercure Hotel Surabaya

Drs. Edy Prawoto, SH, M.Hum
Rector of UBHARA Surabaya

Dr. Rr. Ani Dijah Rahajoe, ST., M.Cs
General Chair of ICoSTA

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