

[招待講演] 屋外 Wi-Fi CSI センシング, 屋外音響センシングの 現状と課題

石田 繁巳[†]

[†] 公立ほこだて未来大学 〒041-8655 北海道函館市亀田中野町 116-2

あらまし 近年, Wi-Fi 信号の伝搬チャネル情報である CSI (Channel State Information) を用いたセンシング技術が飛躍的な進歩を遂げている. 筆者らも, 浴室でのセンシング [1] や工場機器のセンシング [2] などの研究を行っており, 屋内環境では実用的なセンシングが実現されつつある. 一方で, 屋外で伝搬路が単純であることが多く, センシングが困難であることを確認している [3]~[7]. 本講演では, これらの屋外 Wi-Fi CSI センシング技術の現状と課題を示す. また, 同様のセンシングを音響信号分析によって実現する試みについても紹介する.

キーワード Wi-Fi, CSI (Channel State Information), 屋外, デバイスフリーセンシング

[Invited Talk] State-of-the-Art Wi-Fi CSI and Acoustic Sensing in Outdoor Environments

Shigemi ISHIDA[†]

[†] Future University Hakodate, JAPAN 041-8655

Abstract Recently, there has been increased interest in Wi-Fi CSI (channel state information) based sensing technologies, which rely on wireless channel changes for sensing. We are also developing Wi-Fi CSI based sensing technologies including in-bath sensing [1] and vibration sensing [2]. Although many attempts have been made in indoor environments, we are facing outdoor-specific issues in outdoor environments [3]~[7]. This presentation indicates state-of-the-art Wi-Fi CSI sensing in outdoor environments including difficulties of the outdoor Wi-Fi CSI sensing. We also present our recent trial of similar sensing utilizing acoustic signals.

Key words Wi-Fi, CSI (channel state information), outdoor, device-free sensing

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