

Introduction To Wi-Fi Sensing and the IEEE 802.11bf Standard

Abstract: Wi-Fi sensing is the use of Wi-Fi to enable everyday electronic devices to acquire information and become aware of their surroundings. Interest and research in the area has grown steadily over the past two decades, and Wi-Fi sensing is now used in a wide range of applications, including user presence detection, space occupancy analytics, and home security systems. Due to the significant and growing market interest in the area, a new IEEE 802.11 Task Group (IEEE 802.11bf) was recently formed to develop an amendment to the 802.11 standard that will enhance its ability to support Wi-Fi sensing applications. This talk will begin with an introduction to wireless sensing systems and to Wi-Fi sensing. We will then discuss the main definitions and features of the IEEE 802.11bf draft standard.

Bio: Dr. Claudio da Silva is a Wireless Systems Engineer in the Reality Labs group of Meta Platforms (formerly Facebook) and is responsible for the standardization of wireless connectivity technologies and for advancing Meta Platforms' spectrum policy strategy. He also serves as the Technical Editor of IEEE 802.11bf (WLAN Sensing), a task group currently developing an IEEE 802.11 amendment that enhances Wi-Fi sensing technology, and as an IEEE Communications Society Distinguished Lecturer for the 2022-2023 term. Before joining Meta Platforms, Dr. da Silva was with the Next Generation & Standards group of Intel Corporation, where he was responsible for driving technology and product innovation by leading and contributing to various standardization, certification, and regulatory activities. During his tenure at Intel, he served as the Technical Editor of Wi-Fi Alliance's 60 GHz TTG from 2019 to 2021. Before Intel, he worked on cellular modem implementation and applied research at Samsung Mobile Solutions Lab. The first years of his professional career were spent at Virginia Tech, where he was an Assistant Professor in the Bradley Department of Electrical and Computer Engineering.

Dr. da Silva received the B.S. and M.S. degrees from the State University of Campinas, Brazil, in 1999 and 2001, respectively, and the Ph.D. degree from the University of California, San Diego in 2005, all in electrical engineering. He was an Editor for Modulation and Signal Design for the IEEE Transactions on Communications from 2012 to 2015 and is currently serving as a Guest Editor for the IEEE Communications Magazine. He has served on the technical program committee of numerous IEEE conferences in the communications area. He is a Senior Member of the IEEE.