

Master's Thesis

Placing LiFi OFEs in a 3D space

LiFi (Light-fidelity) is becoming an increasingly important technology as the unlicensed ISM band gets overcrowded. LiFi, with its high data rates, emerges as a promising solution to provide connectivity using LED lights thereby reducing the interference with other wireless technologies. Due to the unique properties of a visible light communication system, the position of the access points/LEDs/Optical front end (OFE) has a significant effect on the network coverage and illumination level in an indoor area.



The placement of these OFEs is a 3D placement problem. This work involves optimizing the placement of the OFEs given a set of requirements eg. throughput, luminance, etc. Given these requirements the goal is to find the optimal placement such that, for example, throughput is maximized.

Related Reading:-

- H. Haas, L. Yin, Y. Wang and C. Chen, "What is LiFi?," in Journal of Lightwave Technology, vol. 34, no. 6, pp. 1533-1544, 15 March 2016, doi: 10.1109/JLT.2015.2510021.
- Uluturk, I., Uysal, I., & Chen, K. C. (2019, January). Efficient 3d placement of access points in an aerial wireless network. In 2019 16th IEEE Annual Consumer Communications & Networking Conference (CCNC) (pp. 1-7). IEEE.

Prerequisites

- Python
- Sound knowledge of Wireless Communication
- Interest to learn new communication technologies
- Experience with optimization problems is an advantage

Advisors

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