

Bachelor's Thesis:

Atmospheric Channel Impairments in Free-Space Optical Communications

Just as the visibility of distant objects or a city skyline changes as the atmospheric conditions vary, so do the transmission characteristics of electromagnetic waves. Accordingly, understanding these atmospheric conditions is crucial for applications depending on optical wave propagation like free-space optical communications (terrestrial and satellite), imaging, or laser radar.

Among others, the weather conditions, the level of pollution, and the strength of atmospheric turbulence affect the propagation of light through the atmosphere. Hence, they can significantly limit our ability to view distant objects or transmit data in free-space optical communications.

Your tasks could comprise:

- Conducting a literature review on the atmospheric effects affecting optical communications
- Identifying the effects with the largest impact in the near-infrared regime
- Modeling the impact of these key effects on light propagation
- Experimentally verifying the models

Interested? Then contact

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