# Article information:

Simultaneous Navigation and Radio Mapping for Cellular-Connected UAV With Deep Reinforcement Learning | IEEE Journals & Magazine | IEEE Xplore
<https://ieeexplore.ieee.org/document/9354009>

# Article summary:

1. This paper proposes a coverage-aware navigation approach for cellular-connected UAVs to achieve ubiquitous 3D communication coverage.

2. The proposed solution is based on deep reinforcement learning (DRL) and the dueling double deep Q network (dueling DDQN).

3. The proposed simultaneous navigation and radio mapping (SNARM) framework uses the UAV's signal measurement to both directly train the action-value function of the navigation policy and create a radio map that can predict outage probabilities at all locations in the area of interest.

# Article rating:

Appears well balanced: The article presents the information in a reliable and balanced way, without biases and prejudices. The claims made in the article are well supported and, where applicable, all sides of the argument are given opportunity to present their point of view. The article appears trustworthy and reliable.

# Article analysis:

The article is generally reliable and trustworthy, as it provides a comprehensive overview of the proposed solution for achieving ubiquitous 3D communication coverage for cellular-connected UAVs. The authors provide detailed descriptions of their proposed approach, which is based on deep reinforcement learning (DRL) and the dueling double deep Q network (dueling DDQN). Furthermore, they present a new framework called simultaneous navigation and radio mapping (SNARM), which uses the UAV's signal measurement to both directly train the action-value function of the navigation policy and create a radio map that can predict outage probabilities at all locations in the area of interest.

The article does not appear to be biased or one-sided, as it presents both sides of the argument equally. It also does not contain any promotional content or partiality towards any particular point of view. Additionally, possible risks are noted throughout the article, such as interference from non-associated co-channel BSs and infrastructural costs associated with providing ubiquitous sky coverage.

The only potential issue with this article is that it does not explore any counterarguments or missing points of consideration regarding its proposed solution. However, given that this is an academic paper rather than an opinion piece, this lack of exploration is understandable.

# Topics for further research:

* UAV communication coverage solutions
* Interference from non-associated co-channel BSs
* Infrastructural costs of providing ubiquitous sky coverage
* Deep reinforcement learning for UAV navigation
* Dueling double deep Q network
* Simultaneous navigation and radio mapping

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