

Review Curr Opin Neurol. 2023 Dec 1;36(6):549-556. doi: 10.1097/WCO.0000000000001213.

Epub 2023 Sep 26.

# Artificial intelligence in neuroimaging of brain tumors: reality or still promise?

Ian Pan <sup>1</sup>, Raymond Y Huang

Affiliations

PMID: 37973024 DOI: [10.1097/WCO.0000000000001213](https://doi.org/10.1097/WCO.0000000000001213)

## Abstract

**Purpose of review:** To provide an updated overview of artificial intelligence (AI) applications in neuro-oncologic imaging and discuss current barriers to wider clinical adoption.

**Recent findings:** A wide variety of AI applications in neuro-oncologic imaging have been developed and researched, spanning tasks from pretreatment brain tumor classification and segmentation, preoperative planning, radiogenomics, prognostication and survival prediction, posttreatment surveillance, and differentiating between pseudoprogression and true disease progression. While earlier studies were largely based on data from a single institution, more recent studies have demonstrated that the performance of these algorithms are also effective on external data from other institutions. Nevertheless, most of these algorithms have yet to see widespread clinical adoption, given the lack of prospective studies demonstrating their efficacy and the logistical difficulties involved in clinical implementation.

**Summary:** While there has been significant progress in AI and neuro-oncologic imaging, clinical utility remains to be demonstrated. The next wave of progress in this area will be driven by prospective studies measuring outcomes relevant to clinical practice and go beyond retrospective studies which primarily aim to demonstrate high performance.

Copyright © 2023 Wolters Kluwer Health, Inc. All rights reserved.

[PubMed Disclaimer](#)