

# ON THE EDGE OF SUCCESS. THE SKY IS NOT THE LIMIT

Advanced Navigation's founders Xavier Orr and Chris Shaw



Advanced Navigation is another company building Australia's sovereign capability in space. Launched in 2012 by robotics engineers Xavier Orr and Chris Shaw, it has manufactured what Orr refers to as a fancy GPS.

In 2008, while studying AI at university, Orr discovered navigation systems were using an algorithm from 1967 known as the Kalman filter. That algorithm hadn't been updated since its inception, so he focused his thesis on an AI neural network alternative to that algorithm.

"That thesis had some really successful results," he says. In 2012, he teamed up with Shaw, who had expertise in sensors and electronics, to form Advanced Navigation to commercialise Orr's thesis technology. Airbus, Boeing, and Tesla have all picked up Advanced Navigation's technology.

That technology, Orr says, is like GPS without the satellites.

In technical terms it's an inertial navigation system that enables positioning without using satellites. The tech has uses in all fields - land, sea and air - but a \$690,000 grant from the ASA through its Moon to Mars Supply Chain Capability grants pro-

gram allowed Advanced Navigation to space-qualify its AI and be picked up by NASA, as well.

"There's huge utility for that technology in space," Orr says. "When you have a spacecraft, you need to know which direction you're pointing and where you're headed - our technology gives you all that information. The tech has been around since the 60s, but our version, the AI version, can do it more accurately, with less power. You can run reliable missions with space using that."



And Orr credits NASA's use of the technology in its next lunar mission to the ASA.

"For where Australia's space journey is at, I think they [the ASA] have had a tremendous impact in driving the industry," he says.

"I think any investment strategy needs to be diversified. You can't be wholly reliant on grants. You never know what happens with grants; they're not guaranteed. For us, the grants have certainly allowed us to do something that we wouldn't have otherwise done."

The company raised \$108 million in its November 2022 Series B funding round led by US global investment firm KKR. To date, the company has raised more than \$134 million from venture capital.