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Australia develops new technology for neonatal care

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Research breakthrough to safely monitor pre-term babies



Researchers at the University of South Australia have successfully trialled new computer vision technology to safely monitor the heart and respiratory rates of premature babies in neonatal units.

In a study led by UniSA neonatal critical care specialist Kim Gibson and engineer Professor Javaan Chahl, the team has demonstrated a new non-contact way to monitor pre-term infants in intensive care.

The infants were filmed using high-resolution cameras at close range and their vital physiological data extracted using advanced signal processing techniques that can detect subtle colour changes and movement not visible to the human eye.

“Our computer vision system captures subtle signals in a pre-term baby, such as invisible skin colour variations that can be amplified to measure cardiac activity,” Gibson says. “We can also apply algorithms to magnify movement to give nursing staff a clear picture of what is going on with pre-term infants.”

The technology has been successfully trialled at Flinders Medical Centre Neonatal Unit, monitoring 10 premature babies.

Further research is needed but preliminary results show that the non-contact system could help monitor the health of pre-term babies, particularly when resources are scarce, and the risk of infection is high.