

## Manish Patel, Chief Technology Officer , Cupris



*'Matthew's work has already been instrumental in the way the company will take telemedicine forward, and if he is willing we would have him work on similar projects and be more involved in extending the AI he has built in the future.'*

Matthew Chin was brought into a data science role at Cupris. It was a role entirely based on software development (i.e. no lab-based work or off-site).

Matthew has made a start in engineering an AI, which the company envisions will be the cornerstone of the applications that we develop. The solution that he has created will improve the way the Cupris app can direct a diagnosis by using the information given by the user – effectively it has made the app smarter and more useable for non-medical staff to use. This will open up the use of the app to non-medical users and therefore could reduce the burden on the NHS by enabling remote healthcare.

The role was wide ranging and Matthew had a choice of subprojects to select from – all AI/machine learning projects. He did actually pick one of the more difficult ones. In this particular project our expectation was to have a self-contained, test-quality application that would provide the basis for further research. However Matthew far exceeded this – not only does his application do what was required, he built it into a reusable library and phone app; something we can directly apply into our current production system. Moreover he went further and did the same work again in a different well-known framework, IBM Watson. The result is impressive – his AI outperforms IBM Watson, even with limited data.

The extra work that he has done to build the algorithm into a phone app means that we have a much easier path to production. In the long term this will have a massive impact on the way we go about selling the Cupris service – it means that we now have a way of making the service available to patients as well as doctors/nurses. The implication is that the Cupris service can be trusted to deliver telemedicine to a larger audience. Cupris has already proven in a health economic study that its application for ENT alone could save the NHS between £20m and £30m. Extend that to a wider audience (patients) using the service at home, and suddenly we are looking at much larger savings. Matthew's work definitely goes a long way in making that vision a reality.

For future placement students we look for:

- Bright, confident self-starters
- Programming experience was a massive plus, but ability to bear ahead with a project without too much hand holding was essential for this particular project, because it was so open-ended