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Machine Learning Algorithms: Increasing the Value of Your Picis Data

The collection of data points, information and statistics is always an area of focus when developing a product and in conversations with our current clients. However, the real value of this information lies in how it is interpreted and how the learnings are applied in our customer's facilities. Without that interpretation, analysis and application, the numbers are just numbers.

Dr. Duncan Rozario (https://www.linkedin.com/in/drrozario/) at Halton Health, Oakville and his daughter Natasha Rozario (https://www.linkedin.com/in/natasha-rozario/), a student at the University of Waterloo focused on Machine Learning, had used the data collected from Picis software to theorize improvements in the area of surgical scheduling. They were able to prove that there would have been substantial cost savings for the Oakville facility had machine learning algorithms been available in the past to schedule OR usage. They shared the details of their article that they were about to publish with our team.

Our new director of strategy, Nikhil Bhatia, followed up with Dr. Duncan Rozario who kindly shared the information they had collected with us. As we investigated further we realized that the initiative was clearly aligned with two of our own product roadmap goals – the use of customer feedback to improve our applications and the use of historical data collected from our applications to improve the healthcare system.

The timing of the idea could not have been better. For several months now, we had been reviewing the list of customer suggestions and decided to focus our efforts for the next release on the area of scheduling. Incorporating a machine learning facet felt like the next logical step. That such functionality was driven by customers also vindicated the recent efforts that Picis had put in to creating a new portal for capturing customer ideas.

As for our goal to get the most out of historical data, for many years now we have been providing our customers with tools to enhance their surgical workflows, convert the data collected to electronic format and store it. We have always known that the next step in the evolution of those tools would be to use the data for research, analysis, and optimization.

Our Envision (https://www.picis.com/en/solution/analytics-suite/) product provides indicators to help with the visualization of collected data and now we want to move to the next step: empower our users with the ability to analyze historical data and extract actionable conclusions that could be applied throughout the surgical episode – from the use of clinical data for medical improvements to the use of administrative data for workflow, timing and cost improvements. It soon became clear that the machine learning proposal could provide exactly what we were looking for. Machine learning algorithms have the capability to learn from experience or historical data using multiple criteria rather than (in this case) the simple averages over recent case times that our OR Manager software had been using for scheduling until now.

With an agreement of mutual collaboration in place, Picis has worked with Natasha to validate the algorithm against another customer database. Initial results have been promising and served to reinforce the fact that many hospitals could make substantial cost savings with such a system in place.

Since then, our R&D team has been working with Natasha to refine the algorithm and include it as part of the offerings for our next release, 10.0 MR1, which is scheduled to be released in Q3.

About the Author

Marc Lloses Padilla, Vice President, Research and Development

Marc Lloses brings over 20 years of experience in the engineering world. Prior to joining the Picis team, Lloses worked on Ericsson Mobile R&D and on Siemens Dematic. At Ericsson he was in a pure engineering role, working with the research of new software for mobile platforms. Moving on to Siemens Dematic he was in a more customer-focused role, creating custom solutions for automated storing.

Since 2004 Lloses has been working at Picis, evolving from Senior Developer to Team Lead, Manager and Director. During these years, he has been leading the development of all the Perioperative applications while empowering the team to be innovating but at the same time following ISO quality standards for a healthcare company.

Mr. Lloses earned a bachelor's degree in Computers Engineer from UPC (Barcelona) and after that, he graduated in Audiovisual Communication at UOC (Barcelona) while he was already working. He also took a Master on Design Patterns at UOC.

ABOUT PICIS

Picis provides clinical information solutions to automate the perioperative process with one continuous patient record, from preop to anesthesia through PACU.

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