

Leveraging Azure Machine Learning to improve insurance reserving



Milliman and Microsoft are collaborating on custom machine learning-based tools and models to help P&C insurers analyze claims and set reserves. When combined with Milliman's Arius® reserve analysis solution, actuaries can rely on more efficient, in-depth analyses and make more informed business decisions.

Machine learning solution partnership

We have developed a framework and process for building, testing, and deploying machine learning models into the workflow of an actuarial department, and potentially working in conjunction with our Arius solution. We work closely with key members of your team throughout all phases of the project to assure that resulting models are customized to your specific needs, your other systems, and your team's key work processes.

In one example, we are combining Microsoft's Azure Machine Learning technology and data science team with Milliman's deep actuarial expertise to transform the way insurance case reserves have traditionally been estimated. Using cloud-based predictive analytics, we derive more objective individual claim reserves and feed them into the actuaries' work stream in our Azure-based Arius reserve analysis software.

The resulting modeling solutions are automated and production-ready. They enhance the overall efficiency and accuracy of the reserving process through a variety of potential improvements. Depending on the use case, these benefits may include:

- More realistic "Day 1" estimates of ultimate loss
- Optimized reserve segmentation
- Algorithmic derivation of case reserves

Benefits of the solution

- Greater management transparency sooner after the monthly or quarterly close, and thus faster and more agile decision-making.
- More stable and consistent reserve levels from one period to the next, as the models add objectivity to the current human element.
- A machine learning platform on which additional models can be layered. This includes your team working closely with Microsoft and Milliman experts as you become more experienced with the technology and methodologies.

Real world example

Working closely with a major U.S. auto insurer, we created a collaborative Azure environment that uses machine learning to provide better estimated ultimate settlement costs for private passenger bodily injury claims.

- The models analyze transaction-level data, policy attributes, and other relevant data sets that aren't often used in a typical reserve analysis.
- Historical data is combined with current facts so users can derive more objective and realistic estimates of the ultimate cost to settle individual claims.
- The framework includes connections that feed model results into Arius, which is already automating much of the workflow throughout the reserving department.

Learn more

Contact an expert at actuarialsoftware@milliman.com or visit actuarialsoftware.com to schedule a meeting today.

Milliman Arius®