

Boost Production

Increase capacity without buying new equipment, running trials, or interrupting production.

Meet Your Goals

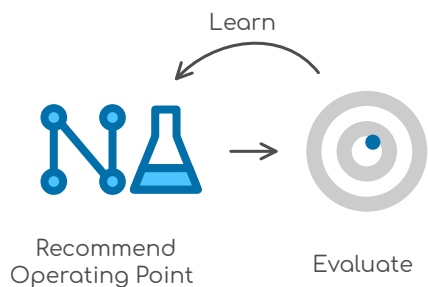
Deep learning models suggest optimal operating conditions that balance targets for production, quality and economics.

Improve Sustainability

Reduce GHG emissions, energy consumption, and waste streams. Exceed expectations.

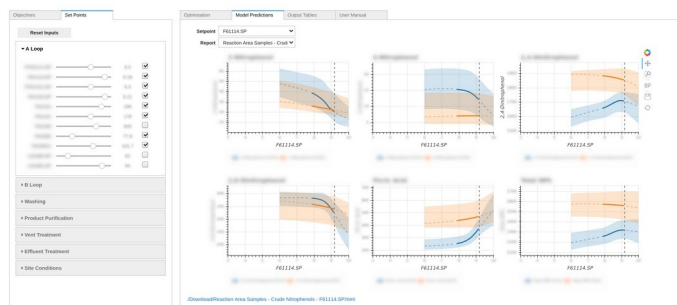
Better Results Faster

Leverage the data you already have to improve your operations. Our deep learning models guide you towards an optimal operating point that balances your goals for production rate, product quality and economics.



Deeper Insight

Our deep neural networks can identify trends that conventional engineering analysis can't. Interrogate our model to better understand the trade-offs in your process.



Engineered Optimization

Experienced engineers and data scientists support you in achieving competing goals.

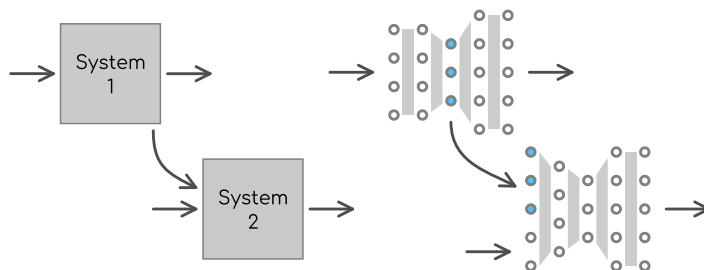
- Improve capacity without downtime
- Improve product quality
- Reduce energy consumption and emissions
- Reduce additive consumption
- Adapt to seasonal changes & aging equipment
- Adapt to changing product specifications
- Adapt to new regulations

Case Study – Cleaner Product

NORAM Analytics has applied its machine learning guided process optimization technology to increase the maximum sustained production capacity of a Huntsman Polyurethanes plant producing mononitrobenzene (MNB) by 3% while simultaneously reducing byproducts by 20%.

A neural network model was designed based on the flow-sheets and P&IDs. It was first trained on 6 years of DCS data and extended to predict lab sample analysis data collected on site. Client optimization goals and over 200 process trip set points and were incorporated into the model.

A web based dashboard allows us and our clients to interact with the deep learning model and generate improved operating point suggestions.



After careful review by our process team, we passed along the model suggested operating point to our client for a trial. The results speak for themselves: a 20% reduction in byproduct concentrations while operating at 103% of historical maximum capacity.

After a running a trial, new data is used to retrain the model and generate even better suggestions.

