Chris Boljkovac

chris@chrisboljkovac.com • +1 780 217 6071
www.chrisboljkovac.com • www.linkedin.com/in/chrisboljkovac

Summary

A specialist in process optimization, modeling, and model-based control with a history of success optimizing productivity, quality, and profitability in fast-paced production environments. Work experience in hydrocarbon, chemicals, pulp and paper, steam/power, and mineral processing industries. 10+ years developing commercial modeling and control software and 15+ years creating and deploying these technologies to improve process safety, environmental performance, reliability, costs, and margin for leading manufacturers. Outstanding communication, problem solving, and relationship management skills.

- Process Optimization
- Advanced Process Control
- Applied Mathematics
- Process Modeling
- Data Reconciliation
- Production Economics
- Software Development
- Technical Computing
- Project Management

Experience

Shell (Ft. Saskatchewan, AB) 2006-Present

Global energy company with 86,000 employees in 70 countries; 388 B$ revenue in 2019.

Senior Optimization Specialist (2017-Present), **RTO Engineer** (2006-2017)

Leading the delivery of benefits for the refinery, chemical plants, and upgraders using real time optimization (RTO) and related technologies. Ensuring that the site RTO platform is maintained, developed, and used in innovative ways to improve process safety, environmental performance, reliability, costs, and margin. Working with operations, economics, and engineering disciplines to identify new optimization opportunities that align with site business goals. Developing and applying offline process models to support unit performance improvement and debottlenecking studies. Deploying model-based real time monitoring, plant-wide data reconciliation, and mass balance applications and supporting their use in process analysis, flow meter performance monitoring, greenhouse gas (GHG) reporting, and production accounting. Collaborating and sharing technical knowledge across the enterprise. Developing and maintaining site subject matter expertise and supporting talent development in the use of process optimization and modeling technologies.

- Improved Refinery margin by 1-4 M$/m by implementing an online model-based relief load estimator for a crude column that allowed maximum feed diet flexibility while ensuring continued safe operation.
- Increased operating profit by 2-3 K$/d by implementing an RTO system for a 155,000 bpd A&V unit with tools to monitor constraint relaxation opportunities and heat exchanger cleaning benefits.
- Delivered 40 K$/d per production run by developing a non-linear control method to produce high quality C5-C6 diluent with existing advanced control (APC) and optimization (RTO) applications.
- Produced 20 K$/d in yield improvement by deploying a rigorous online crude furnace model to improve firing limit prediction, allowing up to a 4 C increase in outlet temperature.

Domtar (Cornwall, ON) 2003-2005

Paper product manufacturer with 8,500 employees serving over 50 countries; 3.3 B$ revenue in 2005.

Senior Automation Engineer

Maintained 500+ control loops, 200+ operator displays, data historian (PI), and batch and advanced controls for the pulp mill, steam system, and wastewater treatment plant. Monitored distributed control system (DCS) health, resolved system problems, and performed hardware and software upgrades. Trained instrument technicians on DCS configuration and loop tuning. Developed DCS programming standards, long-term automation upgrade plans, and proposals for capital projects.

- Increased production rates by 3-5% while reducing product quality variations by improving the recursive parameter update method in a Honeywell model-based batch digester control application.

- Saved 30 K$/trip in lost production by modifying and tuning the advanced control system for a 230 tph utility boiler to improve load disturbance rejection.

Hyprotech (Calgary, AB) 2000-2002

Simulation software provider with 400 employees and 68 M$ revenue; acquired by AspenTech in 2002.

Senior Research and Development Engineer

Spearheaded the incorporation of open-equation simulation technologies in HYSYS. Developments included solution algorithms, optimization features, and process unit models. Provided technical expertise for real time optimization (RTO) system proposals and designs. Supported RTO project staff on process and control system modeling, process data interfaces, and system commissioning.

- Avoided 50 K$ in cost overruns while meeting challenging performance requirements by developing a mixed integer non-linear programming (MINLP) algorithm for a HYSYS.RTO project.
- Improved HYSYS solution speed by 5- to 10-times for highly-interactive simulations by implementing a feature to embed open-equation sub-models in process flowsheets.

Open Models (London, ON) 1998-2000

Start-up specializing in process simulation software and services; acquired by Hyprotech in 2000.

Technology Manager, Co-Founder

Directed simulation software development for use in operator training, process control, process design, and cloud-based modeling applications. Worked with Operations and Business Managers to create product roadmaps, project proposals, and marketing materials. Evaluated new simulation technologies, mentored software developers, developed new modeling features, database interfaces, and prototypes.

- Delivered 100 K$ in additional license sales from new modeling features developed for MASSBAL.
- Landed a 200 K$ dynamic simulation project by developing a real-time interface between MASSBAL and Simulink.

Honeywell (London, ON) 1993-1998

Technology and manufacturing company with a workforce of 57,000; 8.4 B$ revenue in 1998.

Senior Applications Analyst (1997-1998), **Team Leader** (1994-1997), **Applications Analyst** (1993-1994)

Led the development of the Optimizer online modeling platform for use in real time optimization (RTO) projects. Created a real-time executive, steady state detection, data screening, and process data interfaces. Upgraded the MASSBAL simulator with refinery reactor models (FCC, HCR, and HF-Alky), distillation and heat transfer models, thermodynamic packages, and optimization algorithms.

- Awarded four (4) real time optimization (RTO) projects worth over 1.0 M$ in the 2 years following the initial release of the Optimizer platform.
- Secured a multi-year 300 K$ process design and control project by prototyping and demonstrating a dynamic fired-boiler MASSBAL model to a potential client.

Education

McMaster University, Hamilton, ON
Master's Studies (Process Control)
courses: Digital Control, Optimal Control, Time Series Analysis, Advanced Control

Queen's University, Kingston, ON
Bachelor of Applied Science (Chemical Engineering)

Technical Skills

Process Simulators:	AVEVA ROMeo and PRO/II, Honeywell UniSim, AspenTech HYSYS
Control Systems:	Foxboro IA, Honeywell TDC and Experion
Data Historians:	OSIsoft PI, Honeywell PHD, Wonderware InFusion, Foxboro AIM
Programming:	C, C++, VB, Fortran, MATLAB, TCL, SQL, PowerScript, Perl, Python