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Meet our Members

Q&A with Graham Nasby

Graham Nasby, P.Eng., FS Eng., PMP, CAP®, is an industry-recognized leader in the water/wastewater community for his efforts with distributed control systems (DCS)/ supervisory control and data acquisition (SCADA systems), standards development, and alarm management, and raising awareness around the need for improved cybersecurity.

Highly experienced in system integration, construction management, control systems engineering, electrical design, software development, and user interface design, Nasby serves as the Water SCADA & Security Specialist for the City of Guelph in Ontario, Canada.

As an expert within the automation, controls and instrumentation community, Nasby is frequently sought to author opinion articles in industry publications, including *InTech*, *Opflow*, *Influents*, *Chemical Engineering Progress,* and *Control Engineering*, and to speak at conferences and universities.

Please tell us about your educational and career background and how and why you pursued a career in automation?

When I was a teenager, I ran a small business installing electrical systems in boats. Then I was off to the University of Guelph where I earned a bachelor of science degree (with honors) in engineering systems and computing. While I was at school I also worked in the university's IT department, and renovated houses on weekends.

I completed my engineering degree at the University of Guelph on a part-time basis. Though I started as full-time student in 1997, I soon ran out of money and had to switch to part-time studies in my third year. Taking another five years to finish my degree while working wasn't easy. But some good things did come from it. I learned a great deal about differential equations and the importance of time management. I also managed to get a minor in computer science.

After graduating, I ran my own software development company for a year, before starting my engineering career at a structural engineering firm (yes, structural engineering!). I spent about a year at RWDI, a specialty consulting engineering firm, calculating wind loadings in buildings and building statistical models for weather patterns. I then changed jobs to fit more with what I studied in school: automatic control systems. My new gig was as a control systems specialist at a firm that designed high-vacuum systems, evaporative coating machines, ion-beam mills, and space simulation chambers. I got to play "mad scientist" with them for about year, before spending some time in the ready-mix concrete industry working on supervisory control projects.

Then my career took another turn. At the time I had been doing some lobbying for a local engineering association, and I met fellow at a conference who owned a pharmaceutical engineering firm. We ended getting to know each other quite well, and he soon invited me to come work at his company. I spent three years in the pharma industry doing process control design, project management, and facilities design. It was a cool job, but there was a lot of paperwork.

In 2010, I made the jump to the municipal water sector. I spent the next five years working at a consulting engineering firm in a number of roles focusing on system integration, PLC/HMI programming, instrumentation/control design, electrical design, project management, and construction contract administration/inspection. I also gained some experience in business development, which was an interesting challenge.

After about five years on the consulting side of the municipal water sector (and doing a lot of travel), I felt it was time to go work for a city where I could help shape the long-term development of a single waterworks operation-rather than jumping from project to project. So in the fall of 2015, I started in my current role with the City of Guelph, as the Water SCADA & Security Specialist in the city's Water Services department. Guelph is a medium-sized Canadian city with a population of about 140,000. It is located in Southwestern Ontario, not far from Toronto, and about a 45-minute drive from Lake Ontario.

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Could you provide some detail about your work responsibilities for the City of Guelph?

As the Water SCADA & Security Specialist, I'm responsible for the design, planning, implementation, and maintenance of the city's automatic control systems, ensuring residents and businesses have access to safe, clean, and high-quality drinking water.

The job itself provides a nice mix of project work, long-term planning, and operations responsibilities. I am also very fortunate to work with a great team of people. I focus on the operations side of water services, since the SCADA system plays an integral role in the day-to-day operation, monitoring and compliance aspects of running a water utility.

From a planning point of view, I follow the SCADA master plan, which guides how the system will be upgraded over time, and providing timelines for both testing and deploying new technologies. Coupled with this comes budget and planning responsibilities to ensure work is properly funded and coordinated on a yearly, five-year, and 20-year outlook. Part of the planning also involves developing, updating and maintaining a set of facility SCADA standards for electrical, instrumentation, and software design-a never-ending task.

Guelph's waterworks operations encompass 35 facilities (not too big, not too small), which means that I still get a chance to do hands on-work with the system and I am able to work directly with the vendors/consultants that help me keep the system running. I also enjoy working on larger capital projects with our project managers, to ensure that the automatic control and electrical aspects of our facilities continue to meet the needs of our operations and maintenance teams.

One aspect of the job I particularly enjoy is our SCADA co-op student program. Starting in 2017, we started a program of having system engineering students from the local university, University of Guelph, come and work four months with us. During this time, the students receive hands-on experience working with SCADA systems, and have the opportunity to help us further enhance the performance of the SCADA system, often updating software code. Working with the students has been a great opportunity to bring in new ideas and insights, and to contribute to developing the next generation of automation professionals.

How you are currently involved with ISA?

I'm currently serving as Co-Chair of the ISA112 SCADA Systems Standards Committee, Vice-President of ISA's Industries and Sciences technical divisions, and a voting member on two other ISA standards committees.

Over the years, I've worked with ISA and the IEC (International Electrotechnical Commission) to co-author international standards in alarm management, cybersecurity, and HMI (human machine interface) design. I've also collaborated with ISA, the American Water Works Association, the Water Environment Federation, and other industry groups to author numerous articles on SCADA best practices. Most recently, I was invited to give a talk at the Global Leakage Summit in London UK about the use of SCADA systems to monitor district flow meters (DMAs) in water distribution networks.

How did you initially get involved in ISA?

I first got involved with ISA as a volunteer leader back in 2010, when I was entering the municipal water sector. At the time I needed a job, and decided to attend an ISA leaders meeting in Las Vegas with the hope of making some contacts. One thing lead to another, and I soon joined a consulting engineering firm that specialized in system integration in the municipal water sector.

Thankful to the opportunities afforded to me by ISA, I sought to give something back as a volunteer leader. I became involved with ISA standards committees as a way to contribute to the automation community and to learn from some of some of the foremost global leaders in the field of automation.

For me, my involvement in the municipal water sector was cemented in 2011 when I travelled to the ISA Water/Wastewater and Automatic Controls (WWAC) symposium to give a talk about a SCADA upgrade a client and I had completed together. Apparently we made a good impression! We won the prize for best paper at the conference, and soon I was asked if I would lead the symposium the following year, in 2012. Naturally, I said yes; and to this day I continue to make many new friends and gain new opportunities though my involvement with ISA.

What ways would you say ISA has benefited you?

Looking back over the past 10 years, ISA has enabled me to grow both personally and professionally in many ways. First of all, I now have friends from around the globe due to my involvement in ISA committees and projects. Through ISA's global reach, I have been able to broaden my own perspectives of the needs of others. Being able to work on projects among friends has also helped me develop the leadership, interpersonal, and organizational skills that I now use on a daily basis.

The ISA WWAC conference I presented at back in 2011 was actually the first conference I had ever given a talk at. It was an experience that acted like a springboard to learning how to become a more effective presenter. I am now a frequent speaker at industry events. Through

my experiences with the ISA, and the resultant opportunities that followed, I have been able to refine my public speaking skills, improve my writing, and work with others more effectively. For example, I now co-chair an international standards committee and teach part time at a local college.

ISA has also benefited me from a technical skills/expertise perspective. Through my involvement with ISA committees, I have been able to get to know a wide range of the technical leaders in the automation sphere. By interacting with global experts, I have gotten a chance to learn about automation best practices and how to avoid past mistakes. This type of learning has been priceless. I find the more I contribute to ISA, the more I get out of these interactions. I also now have a network of contacts that I can reach out to for technical advice in my day job.

Furthermore, ISA has given me some insights on how best to develop people as they move through their careers. I look back at my own personal/professional development during the last 10 years, thanks to my ISA volunteering. I would not be where I am today had it not been for the opportunities that fellow volunteers in the ISA had afforded me. I'm committed to help ensure that these opportunities will continue to be available to the next generation.

It is very impressive that you recently received an award from ISA's Standards & Practices Department relating to your involvement on ISA-TR18.2.7, Alarm Management When Utilizing Packaged Systems. Do you have any reaction to receiving the awards?

To be honest, the ISA Standards & Practices award was a complete surprise to me. Back in 2012, a fellow ISA member on the ISA18 Alarm Management committee asked me about co-leading a new working group about deploying alarms with packaged equipment. That individual, who I would soon learn was actually a very seasoned member of the committee, took me under his wing and encouraged me to become primary chair of the ISA-WG18.2.7. What followed was a four-year crash course on how to manage both the technical and people aspects of running a committee with more than 50 active members from around the world. I must have done something right, for in 2017 we got the technical report published…and everyone was still on speaking terms. It was very flattering to receive the award, but in reality writing the technical report was really a team effort.

Do you have any advice or suggestions to young automation professionals entering the profession? Are there things that you have learned that you might pass on…to help them better develop their careers?

What you get out of life is a really a function of what you put into it. The most valuable thing you have is your time. Make a conscious choice how you choose to spend your time. Volunteering in non-profit organizations and getting involved in projects is a great way to develop both personally and professionally.

For ISA, I found that for the time I put into the organization, it has paid back many fold. I now have a large network of professionals and friends from around the world. Together, the group of us have a lot of fun through the various committees and projects we are involved with, and our circle of contacts continues to grow.

On the job front, try to experience as many things as possible. Be on the lookout for interesting projects, and when on the project try to learn as much as you can about it. It is through learning from others and personal experiences that we develop in our careers. Also, strive to become the best you can be in whatever you are doing. Ask questions, and make sure to always find out and understand the reasons why certain approaches/techniques are used. It is through understanding and being able to communicate that understanding to others that you will excel in your career.

It's also important to actively strive for a balance with the various aspects of your life and career. Proper balance comes from dividing time among your family, your community, your career, your job, and your individual needs. All of these are important, and you also have to get your priorities right. Too much of any one area does not help you in the long run. Do what makes you happy, but also think about how your actions/responsibilities affect those around you. For me, I find that doing many different things keeps me engaged.

Getting involved with ISA, with its many different facets, has been a major benefit for my career. I encourage others to get involved to enjoy the many benefits that participation brings. Your career/life is a participation sport; the more you participate, the more you get out of it!