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What's in it for me?

2016 ISA President Jim Keaveney encourages ISA leaders and members to ask themselves how they can better take advantage of all the member benefits available to them.

...our front line volunteer leaders and collective members are all thinking the same thing: **What's in it for me (WIFM)?** Depending on the answer, you might just keep listening, start dancing, or change the channel.

I will admit that there is no magic bullet or slogan that will do the trick. There is no perfect or universal answer. I can only share my own story and hopefully it will resonate with you so that you stay highly engaged with ISA. There are three things that prompted me to

join, become actively involved, and, yes, to do a dance every now and then: training, networking, and mentoring. Let's take a closer look at these.

Training

Like most of you, my formal education did not include much in the way of automation or process controls. I also come from the supplier side of our profession so my automation education has come about through factory training, start-up experiences, field support, and by working with clients.

My local ISA section provided additional training through some great technical topic instruction and classes. Classes primarily covered the basic measurements (pressure, flow, temperature, level), communications, and unit operations (chemical plant operations, distillation). Along the way, I invested in my own ISA library of about 50 books on various topics. These publications have helped me to better understand process controls and become a better, more informed resource to both my clients and my employer.

As a section, district and now Society officer, ISA also has provided me with some excellent leadership training, both formal as well as "on the job." Holding leadership positions in a volunteer organization has taught me much about indirect influence, team dynamics, meeting facilitation, and motivation. The experiences, insights, and skills I have gained have made me a better peer and supervisor—both within ISA as well as in my career. Along the way, I have tried to make sure my company understands the value of my Society involvement and leadership training so that it would continue to support and encourage my ISA engagement. Without question, ISA training has made a very positive impact on my career.

Networking

All the classes, meetings, and conferences I've attended have provided me with the opportunity to cultivate a strong and extensive personal and professional network.

(Continued on page 2)



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(Continued from page 1)

When faced with a particularly challenging technical or business issue, I've been able to draw upon my network of ISA Subject Matter Experts (SMEs) and friends who share their wisdom and provide valuable guidance. ISA also has provided me with the opportunity to meet some of the authors of the important books I've read. Some of these interactions have occurred online as well as face to face.

I'm not sure you can put a price on having a strong network of friends and colleagues. For me, these connections have been invaluable. Networking through my ISA membership is another arrow in my professional quiver that has, I believe, made me a better automation professional and manager. My ability to tap into my ISA network is something my management has also recognized.

There is no doubt that the more you put into a volunteer organization, the more you'll benefit. It will, however, require that you be both persistent and proactive. For me, ISA training, networking, and mentoring have more than answered my own WIFM question. I'm not going to change that channel.

About the Author



Jim Keaveney
2016 ISA President

Jim Keaveney is northeast regional manager and key account director at Emerson Process Management. He brings a strong track record in automation technologies sales and marketing and business planning to his role as Society president. Jim has been an active ISA member for more than 30 years and has served in numerous leadership positions, including Society treasurer, finance committee chair and District 2 vice president. He has received numerous ISA honors, including the Distinguished Society, District 2 Golden Eagle and Lehigh Valley Section Dannenberg Service awards. He also received a Certificate in Instrumentation from the Philadelphia Section of ISA. Jim received a bachelor's degree in business administration from Temple University and a master's degree in business administration from Penn State University.

2016 ISA-Niagara Frontier Section Scholarship Winners



Starpoint High School seniors Ali Binga (left) and Kennedy Burns (right) were presented ISA Scholarships by ISA's Prof Mark Voisinnet. With an interest in Biomedical Engineering, Ali will attend Rochester Institute of Technology while Kennedy will be entering the Chemical Engineering program at SUNY at Buffalo.



ISA's Ed Metzler and Fred Braun present Lewiston Porter senior Grant Guzek a 2016 ISA Scholarship. Grant will be attending SUNY at Buffalo (UB); entering the Mechanical Engineering program.



2016 Section Calendar

Annual Golf Outing	September 21, 2015	Diamond Hawk Golf Course
Technical Discussion & Plant Tour	October 19, 2015	Lockhouse Distillery
Professional Society Holiday Social	1st week December	Gordon Biersch
Technical Tour and Discussion	February 25, 2016	Buffalo State College
Technical Discussion & Plant Tour	March 29 2016	IMA Life
Tech EXPO 2015	April 12, 2016	Marriott Inn
Expo Educational Seminars	April 12, 2016	Marriott Inn
Energy Mgmt. & Best Practices for Measuring Flow & BTU Metering of HVAC and Utility Fluids Tank Vapor and Flame Control Equipment Flowmeters—How to Specify and Apply Industrial Hose Selection Installation and Troubleshooting		8:30am—9:45am 10:00am—11:15am 11:30am—12:45pm 1:00pm—2:15pm
Technical Discussion & Plant Tour	June 20, 2016	Elmar Industries
Annual Golf Outing	September 19, 2016	Diamond Hawk Golf Course

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For more information, contact Joe Cipriani at: Joe.Cipriani@Emerson.com.



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How to turn off this creepy Facebook feature

newsletters@cnet.online.com

Ever wondered how Facebook comes up with some of your random friend suggestions? Turns out, it uses your phone's location along with other data.

Facebook's Suggested Friends category is usually full of casual acquaintances, old friends from high school and other random people.

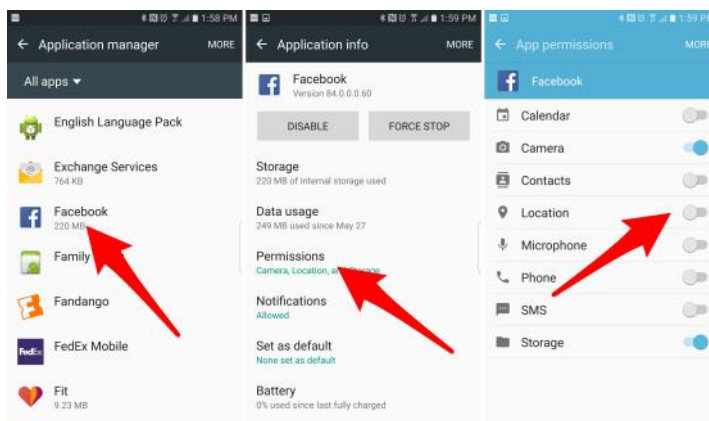
Lately, however, you may have seen random suggestions of people you don't know, yet somehow vaguely recognize. It turns out, Facebook is using your phone's location to match you with fellow Facebook users who are nearby, as first reported by Fusion.

There's a lot that could go wrong with this feature, and frankly it's a bit creepy. However, you can disable location services for the Facebook app on your phone, thereby preventing the social network from trying to play matchmaker.

Despite a Facebook spokesperson originally telling Fusion and CNET location was "one of the factors" used to suggest people you know, a Facebook spokesperson now claims the company is "not using location data, such as device location and location information you add to your profile, to suggest people you may know." Instead, the social network "may show you people based on mutual friends, work and education information, networks you are part of, contacts you've imported and other factors."

Still, you may want to restrict Facebook's access to your location information. Here's how:

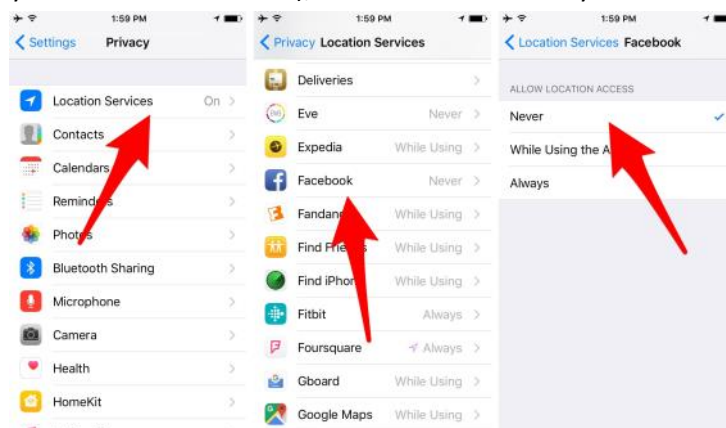
Android users



The process will vary depending on your device, manufacturer and the version of [Android](#) it's using. For Android 6.0 Marshmallow users, go to:

Settings > Apps > Facebook > Permissions > Location > Off.

Users of older Android devices, you may want to look at using Facebook through Google's Chrome browser on your device. Not only does it prevent location access (assuming you decline when asked), it also saves on battery life.



iOS users

Open Settings > Privacy > Location Services > Facebook.

There will be three options listed, but the only one we're concerned with is **Never**; tap on it.

Update Tuesday June 28, 8 a.m. PT: Updated statement from Facebook.

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On June 20th the Niagara-Frontier Section of the ISA continued its educational program by visiting Elmar®

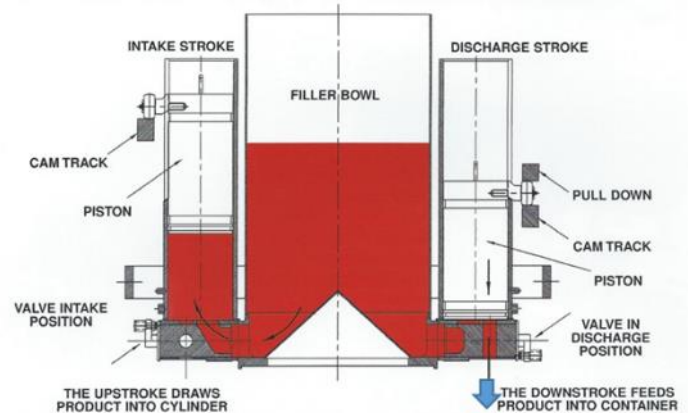
Worldwide at 200 Gould Avenue, Depew, NY. Elmar is considered the largest manufacturer of filling machines for the food, paint, and pharmaceutical industries in the world. Anything that flows can be automatically filled by an Elmar filling station. The company offers a wide range of filling machines, with over 100 different models and configurations with 6 to 72 stations and a capacity of 1/2 oz.(15ml) to 5 gal. (12 l).

The filling mechanism is totally mechanical via volume to volume transfer. Cam followers control the piston action that perform the filling. To assure high speed and uniformity in filling, a piston chamber is loaded with a predetermined volume and this volume is injected into the readied containers. The monitoring of the machine is done with state of art electronic technology—a perfect example of the combination of mechanical and electronic technology to achieve maximum results.



Plant Tour June 2016

The schematic below shows a cross-section of a filling machine which represents the basic principal of the filling process. The product is shown in red. On the left hand side product is drawn into the cylinder by the piston through the rotary valve. A cam track controls the piston action. When a container is present,



the valve is rotated closing the intake and opening the discharge port. The down stroke of the piston forces the product through the discharge port into the container. After the discharge the valve is returned to the original position - closing the discharge port and opening the intake passage. This sequence is then repeated for every cylinder in the system. The piston movement is controlled by a cam track that encompasses the entire filling station. Moving the track will adjust the fill volume. This seems to be a relatively simple process, however, each product has its own dynamics, which requires extensive knowledge of the fluid behavior and a special touch for its control.

The majority of the equipment manufactured by ELMAR is used in filling food products. Stainless steel and high grade plastics are used for the construction of the equipment. The stainless steel parts are polished and designed to accommodate the stringent cleaning requirement of the food industry. Crevasses and dead end spots, where product could accumulate, are circumvented. The parts to be cleaned can be taken apart without the use of tools. For every mechanical engineer the designs are a pleasure to study.

We were guided through the facility by the company's president Mark Dahlquist. We were also accompanied by and Tom Dahlquist, manager for special products. They spoke freely

(Continued on page 9)

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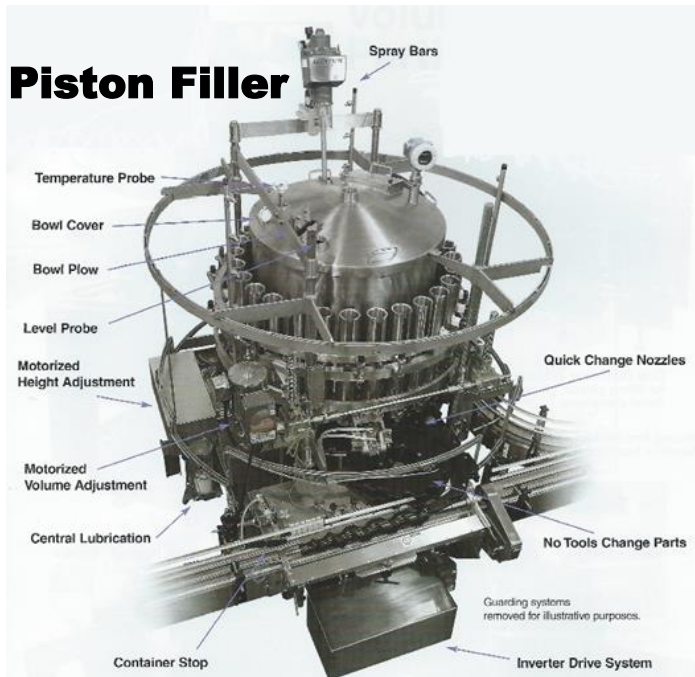
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about the company's products and answered the group's questions expediently.



It was a very informative evening and it was exciting to find a company of the quality of Elmar in our immediate neighborhood. As mentioned, Elmar is the largest manufacturer of this type of filling equipment in the world. It is comforting to know, a



company supplying quality products worldwide in a highly competitive environment, is located in the Buffalo area.

We thank Elmar World Headquarters for a most pleasant factory tour.

As always, the Niagara-Frontier chapter of the ISA provided a box supper for the evening. The tour was organized by our ISA committee member Nico DeWilde.

Twenty of our members participated in the plant tour. We hope to see some of you at our next educational plant tour.

Elmar's website is: www.elmarworldwide.com



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Discovery could dramatically Boost Efficiency of Solar Cells

Scientists from the Department of Energy's Lawrence Berkeley National Laboratory (Berkeley Lab) have discovered a possible secret to dramatically boosting the efficiency of perovskite solar cells hidden in the nanoscale peaks and valleys of the crystalline material.

Solar cells made from compounds that have the crystal structure of the mineral perovskite have captured scientists' imaginations. They're inexpensive and easy to fabricate, like organic solar cells. Even more intriguing, the efficiency at which perovskite solar cells convert photons to electricity has increased more rapidly than any other material to date, starting at three percent in 2009 -- when researchers first began exploring the material's photovoltaic capabilities -- to 22 percent today. This is in the ballpark of the efficiency of silicon solar cells.

Now, as reported online July 4, 2016 in the journal *Nature Energy*, a team of scientists from the Molecular Foundry and the Joint Center for Artificial Photosynthesis, both at Berkeley Lab, found a surprising characteristic of a perovskite solar cell that could be exploited for even higher efficiencies, possibly up to 31 percent. Using photoconductive atomic force microscopy, the scientists mapped two properties on the active layer of the solar cell that relate to its photovoltaic efficiency. The maps revealed a bumpy

Tue, 07/05/2016 - 1:23pm by DOE/Lawrence Berkeley National Laboratory surface composed of grains about 200 nanometers in length, and each grain has multi-angled facets like the faces of a gemstone.

Unexpectedly, the scientists discovered a huge difference in energy conversion efficiency between facets on individual grains. They found poorly performing facets adjacent to highly efficient facets, with some facets approaching the material's theoretical energy conversion limit of 31 percent.

The scientists say these top-performing facets could hold the secret to highly efficient solar cells, although more research is needed.

"If the material can be synthesized so that only very efficient facets develop, then we could see a big jump in the efficiency of perovskite solar cells, possibly approaching 31 percent," says Sibel Leblebici, a postdoctoral researcher at the Molecular Foundry.

Leblebici works in the lab of Alexander Weber-Bargioni, who is a corresponding author of the paper that describes this research. Ian Sharp, also a corresponding author, is a Berkeley Lab scientist at the Joint Center for Artificial Photosynthesis. Other Berkeley Lab scientists who contributed include Linn Leppert, Francesca Toma, and Jeff Neaton, the director of the Molecular Foundry.

A team effort

The research started when Leblebici was searching for a new project. "I thought perovskites are the most exciting thing in solar right now, and I really wanted to see how they work at the nanoscale, which has not been widely studied," she says.

She didn't have to go far to find the material. For the past two years, scientists at the nearby Joint Center for Artificial Photosynthesis have been making thin films of perovskite-based compounds, and studying their ability to convert sunlight and CO2 into useful chemicals such as fuel. Switching gears, they created

(Continued on page 11)



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(Continued from page 10)

perovskite solar cells composed of methylammonium lead iodide. They also analyzed the cells' performance at the macroscale.

The scientists also made a second set of half cells that didn't have an electrode layer. They packed eight of these cells on a thin film measuring one square centimeter. These films were analyzed at the Molecular Foundry, where researchers mapped the cells' surface topography at a resolution of ten nanometers. They also mapped two properties that relate to the cells' photovoltaic efficiency: photocurrent generation and open circuit voltage.

This was performed using a state-of-the-art atomic force microscopy technique, developed in collaboration with Park Systems, which utilizes a conductive tip to scan the material's surface.

The method also eliminates friction between the tip and the sample. This is important because the material is so rough and soft that friction can damage the tip and sample, and cause artifacts in the photocurrent.

Surprise discovery could lead to better solar cells

The resulting maps revealed an order of magnitude difference in photocurrent generation, and a 0.6-volt difference in open circuit voltage, between facets on the same grain. In addition, facets with high photocurrent generation had high open circuit voltage, and facets with low photocurrent generation had low open circuit voltage.

"This was a big surprise. It shows, for the first time, that perovskite solar cells exhibit facet-dependent photovoltaic efficiency," says Weber-Bargioni.

Adds Toma, "These results open the door to exploring new ways to control the development of the material's facets to dramatically increase efficiency."

In practice, the facets behave like billions of tiny solar cells, all connected in parallel. As the scientists discovered, some cells operate extremely well and others very poorly. In this scenario, the current flows towards the bad cells, lowering the overall performance of the material. But if the material can be optimized so that only highly efficient facets interface with the electrode, the losses incurred by the poor facets would be eliminated.

"This means, at the macroscale, the material could possibly approach its theoretical energy conversion limit of 31 percent," says Sharp.

A theoretical model that describes the experimental results predicts these facets should also impact the emission of light when used as an LED. Linn Leppert, Sebastian Reyes-Lillo, and Jeff Neaton performed this particular work.

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To comment, submit suggestions, add, update or edit addresses for the newsletter or mailing list, please contact the newsletter editor

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ISA-Niagara Frontier Section
c/o Hands On Technical Training
435 Creekside Drive, Ste 4
Amherst, NY 14228

NON-PROFIT
US POSTAGE PAID
NIAGARA FALLS, NY
PERMIT NO 28

Time Sensitive Material

ISA-Niagara Frontier GOLF OUTING

Monday, September 19th

11:00 a.m. Shotgun Start

Diamond Hawk Golf Course, 255 Sonwil Drive, Cheektowaga, NY 14225

Sponsorship Opportunities



LOGO Golf Balls
\$ Vary



Longest Drive
\$110



Hole Sponsor
\$60



Iron Raffle
\$ Vary



Closest to the Pin
\$110



Beverage Cart
\$250

Join us for a Fun Day of Golf

\$135 per Player includes:

Bag Service
Driving Range
18 Holes
Cart

Buffet Lunch
Beverages
Steak Dinner
Prizes

LOOK INSIDE for Registration
Information.

QUESTIONS? Call
Tony Anderson (716) 310-4141
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