

EMERGING LEADER

Adam Carlock, Sono-Tek

BY ALISON BUTLER

PURSuing A CAREER WITH PASSION



Adam Carlock Finds a Career in Manufacturing at Sono-Tek

Just off Route 9W in Milton, NY is Sono-Tek Corporation, a manufacturer of cutting edge technology and the industry leader in high performance ultrasonic spray-coating technologies. It is here that Adam Carlock found his calling as an electrical engineer and inventor. He didn't set out on the typical path to become an engineer but his interest in math and science and his passion to invent new technology led him to Sono-Tek.

Adam is from Long Island and originally went to college to learn accounting, but after his first year he realized it just wasn't the right fit for him. He changed course and following his love of cooking became a chef. Adam worked in the restaurant industry as a chef for the next ten years and while he still loves to cook, the lifestyle of a chef was not an easy one, especially for a husband and father. "As a chef I was working late hours and weekends and I was ready for something different. When my wife's career

brought us to the Hudson Valley, at first I thought I would attend the Culinary Institute of America (CIA). Then I decided that a 9-5 job would be a better fit."

At this point he was still planning to go back to college and his love of math and science had him considering different paths in the food industry such as, biology and horticulture in relation to crop development. Finally, it was a class in physics at SUNY Dutchess that really sparked an interest.

While at SUNY Dutchess, Adam took math, science and general engineering courses. Upon completing his Associates Degree, he decided to continue his education at SUNY New Paltz and chose Electrical Engineering as a potential career field. He thought the work was interesting and figured he would be able to get a job at Central Hudson or another local power company upon graduation. Those plans changed after an internship with The Hudson Valley Technology Development Center or HVTDC

(currently the Manufacturing & Technology Enterprise Center -MTEC).

“While working for the HVTDC, my eyes were opened and I saw the other things that electrical engineers could do,” Adam said. He was particularly interested in developing new technology. “I looked at what went into inventing new tech, how to make it and to make it efficiently.”

Manufacturing wasn’t totally new to Adam. While working as a chef he also had a job as a shop foreman in a company that made granite counter tops, so he had experience with CNC (computer numerical controlled) machines and fabrication. After the summer internship with HVTDC where he was in contact with Randy Copeman, the Technology Development Director and Rob Engle, Vice President of Engineering at Sono-Tek, a part-time position opened at Sono-Tek. Randy had been an instructor for one of Adam’s classes at SUNY New Paltz and told him about the opening. This was a golden opportunity with flexible 12-hour work weeks and only three semesters left before graduation. “Working at Sono-Tek while still in college was a great experience because you can really see how projects develop, not just follow a timeline in a classroom setting.” His position became full time once he graduated from SUNY New Paltz with his bachelor’s in electrical engineering degree in 2015.



Alex VanPelt, Engineering Intern, Vaughan Clewis, Mechanical Engineer and Adam Carlock checking the alignment, height, and spring tension on the door and the interlock switch. The interlock switch tells the machine the door is closed. During this check they noticed scratches on the lexan and examined to determine whether replacement of the piece was required.

Part of the Requirement for this BS degree from SUNY New Paltz had Adam complete a Sr. Design project. It was here that Adam actually started his career in inventing. His project, a 3-D printer that created bowls and vessels made of chocolate, received a patent. Interestingly enough, his work on this project took him to the CIA’s special climate-controlled chocolate room where they



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received advice on how to design a climate-controlled chamber for their machine. Dan Freedman, Dean of SUNY New Paltz's School of Science & Engineering called the group working on this project "the three chocolatiers." Yet so far, aside from this project, Adam's food and cooking skills have not yet combined with his inventing and engineering expertise.

Currently Adam is the Jr. Electrical Engineer at Sono-Tek and he explains the advantages of working for a small publicly traded company as, "I'm not stuck in the office all day doing my exact job. I have learned so much about manufacturing in general. I worked with a product engineer for a while and it was eye opening to not only invent the project, but to figure out how someone would build the equipment in the most efficient way. It gave me greater perspective and understanding." Another perk is the flexibility with scheduling, which really helps when you have a family.

The downside is, that while he finds the projects he is working on incredibly interesting, there just aren't enough hours in the day to do all the work he wants to. "Sometimes projects get sidelined or shelved when other things need to get done, especially when we are finishing up the quarter."

Adam explained to us that one of the best parts of his job, in addition to inventing new products, is working on internal projects and making them more efficient. Sono-Tek has recently been reorganizing to make their production processes more lean. Adam has worked on these lean projects, which take into account the number of times someone physically touches a product. He is evaluating whether every person and every touch is necessary, and what steps are required and which ones can be eliminated. He said this process has helped Sono-Tek to become more innovative.



Adam Carlock just completed assembling and wiring the connections for the build station used to make the electronics box and panel. The box holds the electronics for the build and is pressurized to keep the explosive vapors away from any components that could spark. The unit is built to control 3 "slave units".

Becoming lean has helped reduce unnecessary stock and wasted time. The company has also developed its own software for tracking projects and product parts, which has helped with time saving and process simplification.

There are other aspects of being an engineer that are not as exciting, like legacy products. These are products that have been around for a while, work well and are popular so no one wants to change them. Adam just has to support them and replace what needs to keep the machine going. While less exciting, these still bring in a profit and are an important part of his job.

While at SUNY Dutchess, Adam had several mentors that inspired him. Leah Akins, Mark Courtney and physics professor Renee Lathrop. "Professor Lathrop was the first to really open my eyes to what a degree in physics or engineering can really do. She helped me realize how marketable this degree could be and what kind of future I could have." He added that Mark Courtney is a great member of the department at Dutchess and really helps shape the students for what they will see ahead in other engineering schools. At Sono-Tek, Randy Copeman is Adam's direct supervisor and has helped him develop his mindset and his outlook on his career development.

Based on his personal journey, Adam has this advice for young people thinking of a career in manufacturing, "Find what interests you. There are so many fields to choose from, find something you have a passion for." The math required to become an engineer can be difficult for some, but Adam said something he noticed as a math tutor was, if you really want to learn it and you have that passion you would eventually learn it. People that just picked engineering because they thought it sounded good or it was a well-paying field, but did not have that passion, had more of a struggle when the coursework got harder. He also recommends taking math in the senior year of high school, even if it's not required.

Another bit of advice Adam offered, "When looking for a job, especially your first job out of school. Look at the people and the culture, what you make will always be secondary to who you work with every day. The culture can make or break you through the rough times."

Adam doesn't have any concrete plans for the future. He likes inventing and wants to continue to develop himself and see where that takes him. Sono-Tek is an excellent place for that to happen. "The open door to develop both internal and external projects as we diversify our market is leading us in new and exciting directions," Adam explains. "Several projects on the horizon look very promising and have a lot of backing to keep them as a high priority. Working with all the different branches of the company to help make our products easier to produce will give me experience I wouldn't be able to get elsewhere."

"Find something you have a passion for..."



Alison Butler is the Director of Member Programs & Services at the Council of Industry.



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