CEOCFO Magazine

3D Modeling Automation for Mechanical Engineers Working in CAD providing Mechanical and Electrical Schematics Reducing Design Time by as much as 90%

James Sullivan
Chief Executive Officer

CadActive Technologies, LLC
www.cadactive.com

Contact:
James Sullivan
720.770.0250
james.sullivan@cadactive.com

Interview conducted by:
Lynn Fosse, Senior Editor
CEOCFO Magazine

CEOCFO: *Mr. Sullivan, what is the idea for CadActive Technologies?*
Mr. Sullivan: CadActive is a 3D modeling automation company. We create software to accelerate designs for engineers, mostly mechanical engineers working in CAD. Our goal as a company is to develop applications that save engineers time.

CEOCFO: *What do you understand about the process that perhaps others do not?*
Mr. Sullivan: I used to work at a large aerospace company, in their Commercial Space Systems Design group. It was a big company with a lot of really complex CAD models. They actually gave me the task of making their process better, so that their engineers did not have to spend so much time. I spent probably two or three years doing that before leaving and starting CadActive. Therefore, I had the industry experience of, let us say, one of the biggest companies in the world and could make it work for them, so I figured I could probably make it work for others as well.

CEOCFO: *According to your site, with your suite of CAD automation tools you can reduce engineer designing time by as much as ninety percent. What are you able to facilitate to get you to that point?*
Mr. Sullivan: The example that I like to give is, let us say, you are in a building and you are looking around and you are going to be designing a new set of rooms, or you are building a restaurant and you want to lay out the lights in the restaurant. To oversimplify it, we make software so that when someone puts a light bulb in a CAD model, all of the wiring for that bulb would automatically calculate and wire itself from the electrical box to the light bulb. Or for instance, if you are a car manufacturer and you have got hundreds or thousands of wires running throughout your car, all of the connectors for each one of those wires will automatically assemble themselves in the CAD model, so that someone does not have to spend the time to assemble each connector one by one. It is the same thing with automated piping. We do a lot with piping. For example in oil and gas, all of the reducers and fittings and flanges and things like that. We make software so that when an engineer puts one of those flanges in the model it automatically knows that it is using the right size flange. The engineer does not use the wrong part by accident and then order the wrong part, then go to install the wrong part and find out later down the road that it does not work. Therefore, we try to do a lot of automated design up front, and then follow that with automated checking, to help the engineer save time and energy downstream as well. Many of the repetitive tasks that engineers may have to do that is really just grunt work, not necessarily real engineering design. If it is a repetitive task, we strive to eliminate it.

CEOCFO: *Are engineers comfortable and trusting your software will get it right? How do you gain that trust?*
Mr. Sullivan: That is a good question. I have seen both ends of the spectrum. The way that the engineering process typically works is that the engineer always has a chance to review that work afterwards. Therefore, there is always the

chance that before someone checks in their model and makes it available for the rest of the team to see, that engineer can review it and understand everything that happened. We try to help that process by giving additional tools, things like visualization, what connectors got assembled and where did they get assembled, so that when you have got hundreds and thousands of connectors you do not have to go one by one. We try to make that even easier, again, with automated checking. However, we have had some resistance, I would say, against the automation as a whole. Some people say that if people become too reliant on the automation they almost stop thinking, so I would say that some of the pushback we have had is more of a culture push. In reality, we have not had a single problem with the software that we have created, so that is a good sign so far. However, there has been a little bit of a culture shift. Companies want to save money and automation is a way to do that. At the same time, there is a hesitance towards that, just because sometimes it removes the thought process from the design a little bit. However, my take on that is that we are not removing the thought process, we are shifting it. We are making sure that the data in, let us say, a 2D wiring diagram perfectly matches the data in the 3D diagram by leveraging it one to one. Therefore, there is not miscommunication between the two anymore. Therefore, we are trying to eliminate those and, as I said before, add visibility to help alleviate any of those concerns.

> **"To oversimplify it, we make software so that when someone puts a light bulb in a CAD model, all of the wiring for that bulb would automatically calculate and wire itself from the electrical box to the light bulb."- James Sullivan**

CEOCFO: *Are your products available? Are you still in development? Where do you stand today?*
Mr. Sullivan: They are available. We are currently in, what I will call, the late beta phase. We are onboarding users and getting some feedback. People are starting to use these tools and we are really at the point where we are trying to get our first enterprise customer, really. We just had a big trade show up in Boston, PTC LiveWorx is the name of the event. There are several types of CAD, and many companies who make CAD software. PTC is the name of the company that makes the CAD software that we tie into. The analogy that I like to give is that we make apps for CAD software, the same way that many tech companies make apps for Android, iPhone, Windows, or Blackberry. In that analogy, PTC is like Apple, and Creo Parametric (the CAD software) is like their iPhone... We make apps currently right now just for PTC and this was PTC's conference that we just attended last week. That was really our big reveal. We have kind of been operating on a small scale, had not really done any marketing, any outreach or anything. Then we came to the show with, "Here are our three products, here is what we have been doing for the past year." I think we really knocked it out of the park!

CEOCFO: *What did you learn from people that stopped by your booth at the conference?*
Mr. Sullivan: I learned that many people have similar problems and there is no real method of communication for it. There are many companies that were interested in, I will say, one of our three products. For me, it really just confirmed that the three products that we were offering, at least so far, were actually going to be solving people's needs. When I said, "This is our automatic piping product," let us say, and they said, "Wow! I wish I had this six months ago" and that type of thing. That was really a comforting point for my team as well, because not all of them are mechanical engineers, so they were just as excited to physically see people's reactions as I was. I also learned that there is no one else really in this space; at least not many people in this space. So, that was another really good sign for me that we can make this work. This niche is my passion! I love doing this! It is what I have been doing for the past five years, and so to have that passion corroborated while at the conference was amazing, and it is something I hope we continue to be successful with.

CEOCFO: *Are you seeking funding, investments or partnerships as you move forward?*
Mr. Sullivan: Potentially as we move forward; yes. Right now I will say that we have our first round of what I will call "Friends and Family" funding, so we have raised some money there. We have enough for probably about eighteen months of road map. Therefore, it really depends on the success of the product and how fast and how wide we end up trying to scale. I think throughout the course of this year we are probably going to ride the wave and see how it ends. Then beginning of 2018 we may reconsider accepting additional funding, but as of right now we are privately, internally funded.

CEOCFO: *What is the plan for the upcoming year in terms of continuing to get your story and your products out?*
Mr. Sullivan: That is a really good question. The plan for the rest of this year is to start getting a couple of customers. We are really targeting medium to large customers, because typically those are the customers that have the largest CAD models, therefore they also have the largest amount of potential value for using our products. A "Mom & Pop shop" that does engineering could probably use it, but may not save them as much time or money. Therefore, we are targeting medium sized to large customers. We got back from the conference with a really solid set of potential leads. Many really

big names and good potential clients were there, so we get to reaching out to them now starting this week and next week and expanding out our portfolio of applications so that even if we cannot fill the needs of those customers right now, we are still working to develop new applications and new products to fill those pain points.

CEOCFO: *When you get an audience with the right person or people do they understand?*
Mr. Sullivan: I would say yes. I was actually very surprised at the conference at how many people did understand. I was a little concerned that we would have to do a little more storytelling and story boarding and really build out a use case. However, in reality, many of the guys that were there were engineers themselves or had a team of engineers. Maybe they were a manager or a director of engineering and those guys all really understood that what we were doing was saving them time or money. For the more technical people, they understood it immediately and they said, "This is exactly what I need," where for the higher level they said, "Hey, let us investigate a little more." That is because they may not be as close with the design process that their team is using. I think it was well understood and well received. About six months ago now, we pivoted our products. We were starting with one product that is currently on our website called ModelExtract. That was originally going to be our first product. However, as we started to build it, we realized that exact problem; that we were going to have to basically teach people what it did and why they needed it before we could sell it. Therefore, we pivoted and said, "Instead of that, let us do this other one that is a little easier to sell and a little easier to understand, but can still help just as many engineers in the long run." Then as people start to understand the visions and the applications and what we are doing, then I think that second product starts to make more sense. Therefore, we actually pivoted pretty hard to help facilitate exactly the problem that you are mentioning.

CEOCFO: *Your enthusiasm really comes through. Is it frustrating at how long it takes to get new concepts into use? How do you deal with that?*
Mr. Sullivan: Yes it is! To be honest, that is one of the reasons why I left my old job. There is a programming language that I will say not many people in the world know and that is kind of where we base our roots. It is this API for the CAD software. I was the only person that knew that language at the company I worked for, and I loved it! I had all of these ambitions to try to build a team around it. However, that support never really came, at least not in a "centralized" manner. Even though the applications were there it was always a funding issue or a budget issue. There are all sorts of things when you are in a large company like that, which is understandable. Now I am seeing the other side of it where, again, we are developing applications that I know can save these teams' time and energy. However, the frustration is not necessarily that they do not understand it or do not want it. It is that, just like any other company, it takes time to go implement and there are more steps than just hitting the "Install" button. It takes some companies a little while to adopt the mentality and the ideology. Many engineers have a similar concern against this automation thinking, "Look, you are automated away my job." We have had that concern as well. It is funny how many times we have heard it! My counterpoint to that is, "We are not automating your job away. We still need you as an engineer to do your engineering work. We are just trying to make the job easier, so that instead of something taking you five hours, it takes you one hour or it takes you ten seconds, however long, whatever process that may be.

CEOCFO: *Why pay attention to CadActive Technologies, LLC?*
Mr. Sullivan: We are a new face in an old industry. Despite innovations in 3D printing, 3D scanning, etc, there has not really been a lot of groundbreaking innovation in CAD in the past ten to fifteen years. There are slight improvements to some software, but what is unique about us is that we are trying to pay attention to the engineer and to their problems, where many of the larger software companies may not be. I think we are unique for that reason. It is because we have been in those shoes. We have done that design work and we are trying to make it better.