 # TITLE

Applying AI to Computer Aided Manufacturing

Overview and Origin

*** Name of company**

CloudNC

*** When was the company incorporated?**

October 13, 2015

*** Who are the founders of the company?**

Theo Saville and Chris Emery

*** How did the idea for the company (or project) come about?**

Founder Theo Saville worked in a 3D print lab at Warwick University and got accustomed to how streamlined additive manufacturing processes are. While working on the university team to design and manufacture a submarine for the international races in Maryland, WA he was forced to use CAM to make the NC Program for a CNC machine to produce metal drivetrain parts and was frustrated by how clunky the process was. From this experience he got the idea to improve the CAM process by automating much of the NC programming aspect similar to how 3D print slicer programs function.

*** How is the company funded? How much funding have they received?**

CloudNC raised $45 Million on June 21, 2022 in a series B fundraising event that was led by Autodesk.

Business Activities

*** What specific problem is the company or project trying to solve?**

Improving CAM software to autocomplete many of the operations and tasks that are traditionally done by a human operator.

*** Who is the company's intended customer? Is there any information about the market size of this set of customers?**

Anyone who uses Fusion360, MasterCAM, or SiemensNX to for CAM programming. The software is specifically targeted at machine shops looking to increase productivity by reducing CAM programming time.

*** What solution does this company offer that their competitors do not or cannot offer? (What is the unfair advantage they utilize?)**

They are currently the only company in this market space.

*** Which technologies are they currently using, and how are they implementing them? (This may take a little bit of sleuthing; you may want to search the company's engineering blog or use sites like Stackshare to find this information.)**

The CAM Assist software utilizes AI to automate generating G code for CNC machines.

Landscape

*** What field is the company in?**

Computer Aided Manufacturing

*** What have been the major trends and innovations of this field over the last 5-10 years?**

The most prominent innovation in the CAM programming field has been the development of adaptive tool paths to maximize material removal rates. Another big advancement has been the emergence of digital manufacturing with several companies offering CNC services accessed via a web browser with automated instant quotes such as Xometry and Protolabs.

*** What are the other major companies in this field?**

There are no other companies that provide a similar service, but CAM Assist integrates with prominent CAM packages such as Fusion360, MasterCAM, and SiemensNX.

Results

*** What has been the business impact of this company so far?**

As of August 7, 2023 they had over 250 parts uploaded through the plug-in, specifics are not available to General Data Protection Regulation. It has also been used by Lockheed Martin on the F-35 project.

*** What are some of the core metrics that companies in this field use to measure success? How is your company performing based on these metrics?**

The core metrics are the time savings in generating CAM programs and the net cost savings or revenue increase this will lead to for a machine shop over 1 year of business. CloudNC boasts up to an 80% reduction in programming time which is very impressive performance.

*** How is your company performing relative to competitors in the same field?**

There are currently no other competitors in the market space.

Recommendations

*** If you were to advise the company, what products or services would you suggest they offer? (This could be something that a competitor offers, or use your imagination!)**

After reviewing several reviews and software demo's, they have a comprehensive package for automating CAM program generation. Future additions may include incorporating sensor suites on the CNC machines to optimize the CAM programs as they run in real-time.

*** Why do you think that offering this product or service would benefit the company?**

It would allow machine shops to further increase productivity by improving part quality, increasing cutter life, and decreasing operator involvement to tune CAM programs in large manufacturing runs.

*** What technologies would this additional product or service utilize?**

This would require machine learning.

*** Why are these technologies appropriate for your solution?**

Machine Learning would be necessary for real-time data processing from the machine sensor suite to improve CAM program performance.

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