

3D-Printed Shoe Upper Accelerates Small Batch Production

Raise3D Case Study

<https://www.raise3d.com/case/3d-printed-shoe-uppers-accelerates-small-batch-production/>



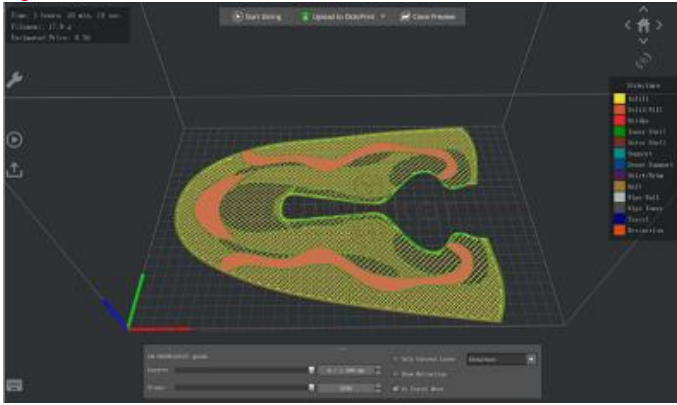
Fashion trends change faster than ever before, and as a consequence, manufacturers are obliged to focus more on small-batch production. This transition in production includes the sneaker-manufacturing industry. While most current manufacturing methods are unable to meet the increasing demand for faster small-batch production, 3D printing is progressing towards fulfilling this need. In 2020, a few giants of the sneaker-manufacturing industry used [Raise3D](#) products to make production breakthroughs and achieve even more success with 3D printing.

Traditional Shoe Production Has High Costs

The production of shoe uppers requires a lot of capital and time investment. Shoe factories need hundreds of knitting machines to produce shoe uppers. Even so, more workers are needed to complete post-processing, including ironing and cutting. If the shoe upper is a non-knitted pattern, additional post-processing steps are required. On average, it takes at least 18 months to produce a new product. However, consumers' preferences for sports shoes fashion change every 3 years, and the changes in taste will only be faster in the future. Therefore, shoe factories need shorter product iteration time and greater innovation.

Incorporating Additive Manufacturing with Raise3D

[Raise3D](#) has developed an innovative FFF (Fused Filament Fabrication) shoe upper manufacturing process which is computerizable and fully automated. A flexible 3D printer filament TPU (thermoplastic polyurethane) is used with the Raise 3D printer to bond to each other. Unlike the knitting process, 3D printing can immediately provide a complete upper. [Raise3D](#)'s solution is a digitalized process where almost all of the fabrication parameters are defined by a single 3D slicing program, [ideaMaker](#). By working with a single piece of software, the manufacturing process is more efficient than having to calibrate the process to accommodate many types of hardware and raw material.



Furthermore, [Raise3D](#) also provides [RaiseCloud](#), a cloud-based 3D printing management software to seamlessly and wirelessly connect with Raise3D printers to make remote batch printing management a lot easier.

The combination of hardware and software in Raise3D's ecosystem helped factories digitalize the shoe upper manufacturing process from both a management and fabrication perspective.

Raise3D's digital process of shoe upper manufacturing.

3D Printing Improved Prototyping



Samples of shoe upper using Raise3D's technology.

Producing with [Raise3D](#) for a new product's R&D cycle has a timeline of 3 months, which is especially short when compared to the previous R&D cycle of 18 months. With [Raise3D](#), a sample of a new shoe upper does not require adjustment tools or sophisticated programming. 3D printers can quickly begin to produce the new samples with preset settings.

3D printing shoe uppers with Raise3D also enables the shoe upper to be printed with designed texture, outline and decorative patterns on the shoe's surface in a single print job. Due to the flexibility of Raise3D technology, the shoe's visual appearance can work in parallel with the wearing experience of the shoe upper. For example, a shoe upper might be tighter or more elastic.

3D Printing Excels at Small Batch Manufacturing

In [Raise3D](#)'s case, the factory was able to easily organize a small batch production without cost-shifting or extra material procurement. [Raise3D](#) printer features in machine's small size, its ability to work independently, and enormous flexibility. The factory was able to quickly produce new shoe uppers in a range of designs. These printers ran automatically around the clock to complete shoe uppers for the pilot launch.

The Future of 3D Printing

Before manufacturers began producing 3D-printed shoe uppers, some sneaker manufacturers produced 3D-printed mid-soles and insoles. Since 3D printing changed the process of sneaker manufacturing to accommodate changing business needs and trends, 3D printing has carved out its place and is definitely here for the long-term. [Raise3D](#) has built a 3D printing ecosystem to help businesses and industries adopt additive manufacturing. This 3D printing ecosystem gave sneaker manufacturers the ability to adapt, meet demand for customization and made small batch production feasible, all of which is becoming more mainstream.

Connect with Raise3D

Do you have a great 3D printing success story and think it would be cool to be featured on www.raise3d.com, we would love to learn more! Write to us at inquiry@raise3d.com

For more information about Raise3D printers and services, browse [our website](#), or [schedule a demo](#) with one of our 3D printing experts.