

Latte Art Machine

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Figure 1: Example of latte art graphics produced by our machine.

1 Introduction

Latte art refers to graphic designs on the surface of espresso based drinks. By manipulating the flow of milk from a jug into the espresso, barista may form several different patterns, including rosettas, leaves and hearts [Schomer 1994]. It is also possible to further enhance the pattern using stencils, powder and milk foam [Wikipedia 2008].

Unsatisfied with the limited choice of patterns, we have decided to investigate alternative means of reproducing designs on the surface of variety espresso-based drinks. After experimenting with different automated etching and pouring techniques with some success, we have built a prototype that uses a modified inkjet print cartridge to infuse tiny droplets of colorant into the upper layer of the beverage. As it turns out, the micro-bubbled texture of the beverage provides sufficient isolation and stability for small droplets deposited using traditional inkjet technologies. The resulting images are sustainable for periods over half an hour.

2 Exposition

At present time, latte art machine consists of the cartridge mounted on computer controlled X-Y translation stage. The stage responds directly to commands sent through GPIB interface, with nozzle firing control being synchronized to the motion. Essentially it is a latte art plotter, capable of reproducing vector graphics, but we are actively working on building a smaller and faster version of the apparatus with a standard printing interface.

After experimenting with different colorants, we discovered that although it is possible to display faint images using coffee directly, the contrast is much better using edible inks readily available from several gourmet companies.

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The objective of our demo is to engage conference attendees into latte art printing process directly. Using our latest prototype connected directly to the graphics software makes drawing on top of latte possible within minutes, and there are no special barista tricks to learn. As part of the demo, we may install WACOM© tablet to render quick sketches in real time. By default, it will be possible to display current conference schedule highlights on latte, the context being updated every hour.

Strategically placed right next to the coffee vendor at the conference, we welcome experimental designs on other beverages. And our own automatic coffee center will be continuously self-serving plain lattes throughout the conference, providing limitless supply of blank media.

3 Conclusion

To our best knowledge no other latte art printing machines have been built to date. It is our hope is that with the rise in popularity of latte art and artistic presentation in the cup, this technology will find its way to the commercial world in one or two years. Meanwhile, our apparatus could also inspire artists and engineers to develop innovative artworks and application.

References

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