

The Land of Coding - Cartography and the Embrace of Technology



Mike Foster is a cartographer, GIS professional and visualisation expert from Boston who currently works in the San Francisco tech industry. He has previously worked at MIT Department of Urban Studies and Planning and is active in the US GIS community. The following is a republished version of Mike's [blog](#) about the complex but changing landscape of cartography. It's a must-read for traditional

cartographers, GIS specialists, coders and visualisation professionals.

Somewhere in the past few decades, cartographers have lost control of cartography. How could this happen? Can we get it back?

Learning to Code

This past fall, I co-taught an introductory GIS and Cartography class in a department of future urban planners. Many great questions were brought up and discussed through the duration of the course, some I would hear more than others. Two of the biggest questions were often in tandem. "Should I learn to code?" and more specifically, "what language should I learn to code in?" My answers were always, "Yes, you should!" and "Anything!" – The reasons for these answers are obvious, I suppose. Learning to program involves a paradigm shift, and you have to be taught what this shift is and should look like. Learning one language will allow you the paradigm that you need to pick up other languages more efficiently. Once you can change and establish your basic assumptions, it becomes a classic example of the law of increasing returns. A coder learning new functions is much like a linguist learning new verbs.

Perhaps the most important professional attribute one can have in our modern society is the ability to learn and pick up new technologies quickly. When doing so, the trick is not to focus on the tool itself. Rather, it's more important to focus on the concepts and fundamentals that manifest themselves through the tool. The same goes for coding. Many of the basics from one language to the next, or from one library to the next, will transfer. This is, of course, not to say that you won't have to bury yourself in syntax references for a while.

To an extremely visual person, such as a cartographer, learning to code can be a tough task. Taking yourself from the world of visually choosing colours from a palette to being more concerned about what specific hex codes are, is not a very scintillating prospect, and going to a place where you generalise a map by creating an algorithm consisting of "if and for" loops quite frankly sounds super boring. One must, however, get to the point where it becomes a puzzle and you are using the pieces to help solve a task. Do this, and you will no longer see just a string of strange characters.

Embracing Coding

Much to my dismay, and unfortunately to the huge detriment of the field, geographers, and specifically cartographers, have been slow to embrace coding. I would largely attribute this to the fact that the history of cartography is very visual. The craft and science has revolved around the illustrative, visual representation of location and earth for hundreds, if not thousands of years. Although being fundamentally scientific, in practice cartography is an ultimate exercise in communication and design. In the 1980's when GIS was beginning to take hold and technology started to explode, software made really (like, really) ugly maps. Unfortunately, this lead many cartographers to write it off, think of it only as a data utility, then quickly return to familiar and well-known visual mediums for geographic representation. In doing so, we have lost our hold as the creators and keepers of maps. Cartographers, as such, did not embrace coding as a new tool for creating maps. This in hindsight was a monumental mistake.

Because maps and location are so prevalent in society, the field of cartography did not die. Instead, it is shared with computer scientists, data programmers, and a range of other professions - ones that often have little knowledge of the intricacies of geographic data, longstanding cartographic conventions, and proper spatial science techniques. Is this a bad thing? I don't know, probably not. Cartography, even if it goes under the guise of "infographic" or "data visualisation" has seen a renaissance in the last ten years as location-based services, spatial data management and visualisation software has exploded. Some have even argued that we live in a golden age of cartography. Can we take back control? Probably not in full. Can we embrace what it has become? Absolutely.

Coding is Important

In many professions, coding is a buzzword. However, to those in the spatial industry, be it geography, visualisation, planning, or whatever, it is important to get yourself in the proper paradigm so that you can carry the field into the future. The professional world and nature of mapping have changed. To survive, you must have a useful, relevant, and utility-driven work belt. Just make sure that being able to create and design through the use of code is one of the tools you have in it!

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