SUBJECT F

tell me a little bit about your background what you have studied and what you have primarily worked with
it's going to be a little different. I was basically my career which has spanned quite a long time, the first 15 years I was University professor teaching primarily applied statistics. i have a degree in sociology and mathematical statistics. i have always been focused in areas primarily which are now called data science. for 35 years i was in software, always working on developing enterprise software for large companies, top of the world 500 so a good portion of that you know as my career progressed I've spent less time coding although i know how to code but primarily leading in designing products and then i ended up being the EVP of product development for a pretty sizable supply chain software company. we sold essentially software similar to a company like SAP, in that market space. on the programming side ive kept up with it because just for whatever reason ive been interested and making sure i wasnt too far behind the people working for me but you know most of stuff we developed in was large-scale things a lot of Java, C++, things of that sort, most of the tools that we use were tools that you find in a big software shop where you got Millions of lines of code so it's a big distance between that environment to something like p5 even with processing which is essentially a library in Java. i know a lot about statistical stuff and I know a lot about data visualization but in keeping with data analysis

so did I understand correctly that you transitioned to being more like a lead developer or designer?
more like a company executive vice president and a CTO. I had 2000 people reporting to me

it has still been primarily technical stuff that you had to work with it, not the visual/design of software?
yeah, but I've done quite a bit of research papers that have involved visualization in special forms

you've used P5 since its beginning. can you tell me a bit about how did this come about?
originally it started with processing and the first exposure to that was frys book visualizing data, that was the first book i read in that arena. so that was kind of the first foray into that then i moved around into things like D3 and related libraries, trying to understand that better. when i officially retired which was about 4,5 years ago i started getting pretty interested in generative art. and so it has all been hooked up with that, part of it was that i originally started of trying to network diagrams of large collections of modern artists and the network associations among them. it sort of fed into that and for the last year ive been working on trying to build a database of p5 programs with an eye towards helping people answer the question "how the hell did you do that" which pops up all the time, people see an output from processing or p5 and say how did you do that? and the person says well, you know, im not sure, go look at this maybe. i spent quite a bit of time going through openprocessing.org and the programs there, ive scraped out about 10000 images and the underlying code. the idea there was that people dont tag very well. seeing that there was ways to use machine learning to look at the code and come up with a way to view the collection.

so somebody says how did you do this then knowing the code and that underlying visual, going in and grab stuff that has the same underlying structure to it. later it has been about trying to look at the visual itself and then identify programs that generated that kind of stuff.

how involved Are you in the community for creative coding?
at the present time not a ton. occasionally i will comment on some stuff but im not 25 anymore and i a lot time doing other stuff, i dont have to get intimately involved. but i wouldnt mind being a little bit more involved.

have you ever been involved in the development of p5?
no. i havent tried to add libraries and stuff like that, get involved in the open source stuff.

lets talk about your project with openprocessing. was this a personal project or where dit it come from?
I was trying to think of the Genesis. it sort of started with just seeing a lot of people asking that question about how did you do this and trying to understand, because openprocessing.org stuff. its helpful but its got a few barriers

what specifically?
first off if you go in there and type a word like particles then it will show top 50 for example. so yoo look at that, you pick one then it goes off and you look at that you come back, and then first off you have to rescroll through everything so its pretty laborious(?) and its also pretty limited. so i was thinking of ways to try to get in there and figure out mechanisms for getting through the info. so i used a snowball technique where i grabbed a hundred images, found out who created them, dragged in all their stuff that wasnt forked, saw who their followers where, then did the same thing for the followers and just kept building so that i got a database of about 20000 images. then i started working on applying machine learning. if somebody said show me stuff about particles, it is easy enough, i already have a database of 10000, so say show me everything that uses particles in it, then i wouldnt have to scroll through, you just get that list, but it doesnt show you, lets say if you had an image and said find me something that has got the same kind of structure or content, so you are trying to find other programs that are sort of like it, and then you can pull up the list that way. so that was the first problem. lately the problem has been to go and find other images that look like this image, using machine learning to figure out those.

so you would use machine learning to scan the image and that way try to determine what structure is used for it?
you could do that or more like show me some other things that are like this, so ive got a database of programs that produce similar images and you could figure out what was key.

have you used any specific techniques for this project in terms of machine learning?
there are programs called NMF - non-negative matrix factorization, it looks at vector similarities between the words or the structure of the program.

so now you have a fully searchable database?
yeah, but unfortunately it is only on my machine. the latest part is that ive been going through major text books in processing and p5 and trying to complete those. so ive been converting a lot of those programs also. i just finished up about an hour ago, so im getting ready to put it on github.

could you give me some examples of other projects that have actually used P5 itself?
I'm not much of an artist so im not really probably the best one to do that. i have been trying to spend a bit of time. what ive been trying to work on also is ways to detect motion which is relatively straightforward in something like to p5 or processing and use that to generate movement on the screen with an eye towards bigger installations, and I'm moving away maybe from P5 over into something like three.JS or something like that, three dimensional stuff that you can build the virtual equivalence of large art installations which is not an uncommon thing I mean of lots of people out there working on this problem

when you say detect motion you mean using a camera?
yes, and then use that motion to drive what is happening on the screen primarily with an eye towards doing it in a larger setting on a desktop computer.

why have you chosen to use p5 for this?
it is an easier way get started so that's the primary reason, still when i want to move it into the 3d realm it is probably not the best way.

yes, you mentioned moving over to three.js, so you still want to keep it in the browser?
for the time being I mean eventually i want to have it in a virtual setting or in a much larger installation.

how has it been to work with P5, has there been issues, has it been easy, what have you been surprised by?
the biggest issue to me is that, especially on the edit side and the tool building side it is really i dont want to say non-existent but it's pretty much in its infancy. if you look at any IDE, the development environment itself is relatively crude compared to other things. i do a lot of programming in Python and two are not, of course one is a full blown language in one is a library. it has actually just started basically, and because it is in its infancy it has a lot of irritating errors occasionally. you get hung up on something you think you are doing wrong and you change it about 20 times and then find oops

could you give an example?
working with the webcam there are all sorts of issues with that and i ve got all kinds of machines in front of me and im changing from one to the next, maybe its the browser in one place, windows 10 in one place vs mac. even compared to processing it has been more exasperating.

why does p5 perform more poorly compared to processing?
one is closer to the native machine, and people have been working on java and get the performance improved over the years. when it first started out it had its own

problems, but now since it been out for so long, and it is the base for processing you have a much better chance of improving performance there than on the web side. especially if you try to grab camera images.

what would you say see as the primary use case for P5?
some people are doing some interesting art work from that standpoint and overtime I think the issue is going to be how many people can they get working on the open-source side to build up the libraries and also move the libraries, they are sort of technically focused in a way vs artistically focused. and I'm not even really a good artist. if they're trying to aim towards, its sort of a bifurcated audience and it seems to be focused more on the technology part than on the art part of it.

do you think it's API should be made even easier?
well for a lot of things it could be made a lot easier, especially for a big chunk of people trying to get involved here, things could be simplified. also if you are sitting there, working in a world of noise, noise is not necessarily a great artistic term. if someone says i want to make my screen look like smoke, then it ought to be a ? that says smoke, but i dont see that sort of thing going on much.

do you see P5 as a starting point and then evolve to something else?
or they figure out a way to either integrate better with other libraries because they're all JavaScript or somebody takes the time to build three.JS as a library in p5. the latter seems more likely but it would be interesting to see a way to hook up some other libraries into larger basic tools that could talk to each other more easily.

do you examples of the coolest things you have seen done in p5. what are some stuff that you've seen where you've thought that's a really interesting way of using P5?
the work done with shaders. there are some people working there that have done some interesting stuff. there are lots of things i find interesting.

you mentioned a couple of other libraries here, so you have used three.js before?
yes, but I'm not an expert in that, ive toyed around with it a bit not enough to give you anything concrete.

also, you mentioned D3 for data visualization
yes, D3 is certainly a lot harder to use. it is out of the school where everything is linked together, it is a long list of linked methods for an object, a pipeline essentially. results from one thing pipe into the next thing and so on and then there is a result. that form of code can get a bit tedious, and hard to follow, kind of a nightmare. there are other programs of that sort in the visualization world, they have the same basic idea that are offshoots of that, a structure that is used quite often with a lot of general environments in javascript.

any other similar creative coding for the web that you have used that are worth mentioning?
im not the best expert in those areas.

how would you compare p5 to these other tools in terms of in which cases for

a future project would you go for P5, what the aspects of a project makes you think that I'm gonna use p5 for this and for this project I'm gonna use three.js or D3 or processing?
since ive focused on p5 lately it has kind of shunned processing to the side, so between those two, if i was looking to create a 2D art image then i would use p5. on the 3d side it is still a bit weak so i would get involved in 3d stuff i would probably switch. as far as data visualization is concerned p5 is not the first thing that comes to mind.

any specific reason for that?
because the others are a lot more advanced in that area, D3 for sure. unless it was something that i really couldnt do in python, i would stick with those two for data visualization, because there is practically nothing you cant do on the data visualization side with those two, the main advantage of D3 are activities on the web and python and R are weak on that side.