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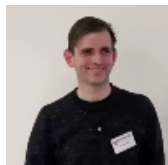
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Understanding Monads. A Guide for the Perplexed



[With the current explosion of functional programming, the "monad" functional structure is once again striking fear into the hearts of newcomers. In this article, Introduction to Functional Programming course instructor Dr. Barry Burd clarifies this slippery critter.](#)

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Bio Leah Hanson works at Stripe on internal developer tools. She likes making and improving tools for people she works with. Previously, she wrote code at Google, Jane Street, Fog Creek, and Recurse Center. Outside of work, she's writing a book about Julia, titled "Learning Julia".

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Code Mesh, the Alternative Programming Conference, focuses on promoting useful non-mainstream technologies to the software industry. The underlying theme is "the right tool for the job", as opposed to automatically choosing the tool at hand.

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1. [We are here at Code Mesh 2015 in London. I am sitting here with Leah Hanson, so Leah, who are you?](#)

I am a software engineer on the Dev Tools team at Stripe, previously I worked at Google on some low level networking stuff and before that I was at Hacker School playing with Julia.

-

2. [You gave a talk here about Julia, and you are doing a lot with Julia, so why Julia?](#)

What I like about it is that it is very easy to use, and despite being as easy to use as Python, you still have a lot of low level control, you can control making sure that your memory doesn't copy you can care about the representation of numbers, so that you know that your Int64, the type you are using is just an Int64, it's not like this amorphous number and who knows what representation is magically happening under the hood. So you can poke around at a much lower level than you are used to in high level languages, I wrote a web socket server in it and you can do all of the bit operations that you need because the headers of the packets have a bunch of flags and one bit for each one, and Julia is storing them in a byte when it parses them from out of the header you can use bit flags and it is surprisingly straight forward considering that it's a language designed to do linear algebra and not a language designed for doing packet stuff.

-

3. [So is it just designed to give you low level bit access? Is that a design purpose?](#)

I think the purpose is that when you are doing Math sometimes you really care about the speed, especially with numbers, and so you want to be able to control whether you are using Int64 or Float32, or for some storage formats they even use Float16, and because there are engineers and mathematicians that care about these very specific number formats and they care about particular versions of performance where these things matter they assure you get all this low level control that lets you do other things that are only sort of in the purview of the language, it's general purpose but it sort of falls out of it that it happens to be good at this

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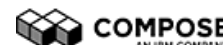
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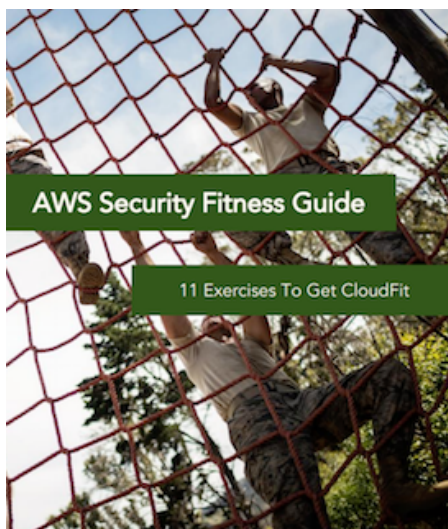
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