

Industry Interview:

Sam McGrath, S2 Games

(Lead Programmer for Savage)

By: AR Schleicher (Jerrith)



ARS: I'm pleased to be able to present this interview with Sam McGrath, of S2 Games, Lead Programmer for Savage. Thank you for agreeing to participate.

SMG: First off, let me briefly introduce myself. I'm currently 25 years old (yesterday was my birthday, in fact). Jesse Hayes, Marc DeForest and I started up S2 Games about three years ago. The engine for Savage (dubbed "Silverback") was created from scratch, and it has evolved into the game you see today. I'm a self-taught programmer, and it's something I've been doing for as long as I remember, ever since my Dad bought a Spectrum ZX back in England when I was about 7 years old (England is where I was born and raised). I'm also a composer, and have been serious about music for about ten years now. I'm mostly self-taught there too, except for a brief stint at the San Francisco Conservatory of Music.

ARS: How did you get into the game industry and what was your first job there? In particular, I've read you were a music composition major when you left

school to work for S2. Was this your first industry job, or was there something else in the past, and how did the change from music composition to programming occur?

SMG: Programming Savage was the first game industry job I ever had. You might be wondering how someone goes from having no industry experience to become the lead programmer of a title like Savage. Well, it had a lot to do with my previous employment, and a bit of luck.

During my senior year of high school, I started working for Autodesk (makers of 3d Studio MAX), programming some small utilities and plugins for a department there. It was during my days at Autodesk that I met Jesse Hayes, my fellow co-founder of S2 Games. Jesse and I often talked about creating our own game company. He saw some of the 3d engine work I was doing in my spare time, and I was very impressed with the 3d artwork he was doing (he was working as an artist at Autodesk). We knew we had the talent between us

to create something cool, but I was about to head on to the San Francisco Conservatory of Music to study composition, so it wasn't something that we were thinking seriously about at the time.

After a year or so of attending the SF Conservatory (and simultaneously looking for a part time job I could use to support myself), Jesse messaged me one day talking about an opportunity that sounded too good to pass up. A guy named Marc DeForest, not a year older than me, but quite a bit more wealthy, was looking to start up a gaming company. He had found Jesse through a contact of his, and I was the first person who came to Jesse's mind for a programmer. So we had a programmer, an artist, and the funding to back it up. I realized pretty quickly that if I wanted to do this, it was all or nothing -- I'd have to quit school, at least for a while, so I could focus my efforts on creating the engine and tools that would eventually be used for Savage. Thus, S2 Games was born.

ARS: How do you get your inspiration while programming?

SMG: "Inspiration" is an interesting word for me, especially since music composition is my other great passion besides programming. A composer usually associates that word with something magical or divine which introduces a seed of thought into the mind from which a piece of music grows. "Inspiration" to a composer is something intangible and unexplainable. Programming, on the other hand, is quite a bit more down to earth than that. I don't think any serious programmer really believes his ideas or algorithms

emerge mysteriously out of the ether. You'll find the information you need to know by studying the research of others and existing source code, and develop new concepts by building from that knowledge.

Once you've got all the concepts in your head and clear direction of how to solve a given problem -- for instance, how do I implement a raytracing function? -- then it's a matter of sitting down and translating that into code. This is usually a lot of hard work, and at this point "motivation" (or "perspiration", as the famous saying goes), rather than inspiration, is probably a more appropriate word.

There's really one main motivating factor that keeps me plugging away at the code, and that is the image in my head of what the finished product is going to look like. Every large or small component, whether it's network code, rendering code, gameplay code, collision, command parsing, input, etc, has to be finished and polished and bug free for a game to emerge.

Programming a file system or a resource manager isn't always the most interesting work, but it's all a means to an end.

When everything finally comes together and you see all the components working together in harmony to create an entire virtual world, there's an incredible sense of satisfaction in that.

ARS: What is your job like on an "average" day?

SMG: I keep wacky hours. Sometimes I come into the office at 8am, sometimes 8pm. Sometimes I'll stay up for two days straight. Things have settled down a little now that the 2.0 patch for Savage

is finally out, but the concept of an "average day" is still a little foreign to me. (-:

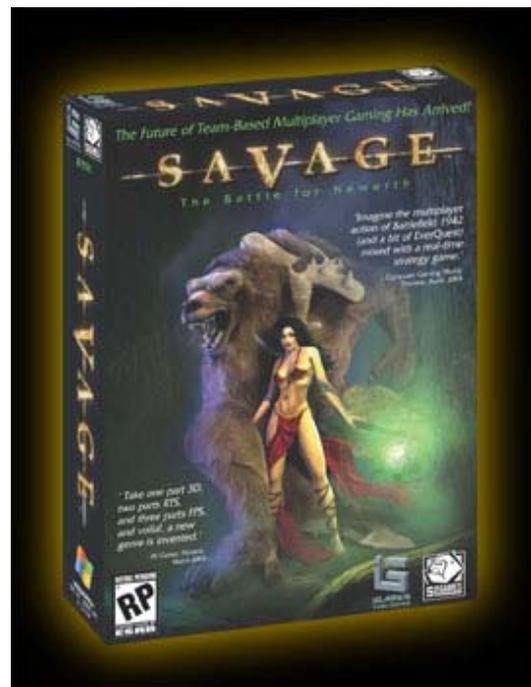
While at the office, I don't do much else other than code. Once in a while I'll check and respond to emails, have a pointless argument with someone (a favorite pastime of everyone here at S2), or play a game or two, but the majority of time is spent in Visual Studio. What it is I'm actually coding changes from day to day and hour to hour. I'm pretty much all over the code base all the time. I might be working on gameplay, core rendering, network, user interface, math functions, sound, timer code, or physics. Sometimes I'll work on one single component for a long time and put all my energy into it. The newly rewritten network code that was introduced in the 2.0 patch was one such component. The skeletal animation system was another. The rendering architecture was another. For a project as large and complex as Savage, and for a team as small as ours, what you're working on changes drastically and frequently.

ARS: What do you enjoy most about your job?

SMG: The whole process of writing, compiling and running code for a cool game is just immensely enjoyable. It has to be, otherwise I wouldn't be able to spend all my time doing it. Seeing people play Savage and having a good time is another great part of the job, probably the most satisfying thing of all. We're actually creating a world for people to play in, and the rules we set up in that world determine the experience that player will have. It gives you a kind of eerie feeling.

ARS: Is there anything you wish that could be better about your job?

SMG: For Savage, at least, it's a situation that's been hard to top from the point of view of the dev team. We're a small team, working on a game where we can call pretty much all the shots in terms of the design, gameplay, and technology. It's been hard work, stressful at times, but ultimately satisfying and rewarding.



ARS: Now that the 2.0 patch is here for Savage, what are you working on? Additional content for Savage? The SDK perhaps? Or are you now working another game that hasn't been announced yet?

SMG: I'm currently working on some internationalization support for the game as we plan to ship it overseas, a few bug fixes here and there, and a new demo. The SDK is something I want to get out as soon as possible, and it will be my first order of business once the

aforementioned items have been taken care of.

I'm afraid I can't say anything about future projects at the moment.

ARS: I found your [personal home page](#), (through your [ESM File Format page](#)) and enjoyed the Adventures of the Hobbit mp3 found there. The music in Savage is great as well. How has your music background influenced your programming and what you work on? Do you still compose much music, and do you have any thoughts to share about how you'd like to see music in computer games continue to evolve?

SMG: I can't say that music has really influenced my programming in any way that I could pinpoint, other than perhaps slowing me down from time to time when I decide to stop programming and play the piano. (-: You can draw similarities between them, but at the end of the day they're very different pursuits. I was glad to be able to compose the background music for Savage, though I wasn't able to spend as much time on it as I would have liked. Most of the tracks you hear were created in a very short period (a day or two) due

to time constraints. It's very hard to balance two things you are passionate about, and needless to say, music has kind of taken a back seat for me during my work on Savage. Still, I compose when I can, and I spend a good amount of time at the piano improving my skills there. I'm currently working my way through some of my favorite piano pieces by Brahms.

ARS: What advice would you give to a student (programmer) looking to get into computer game industry?

SMG: The best advice I can give for someone wanting to get into the industry is this: a list of qualifications on a resume isn't going to get you a job. An impressive demo, mod, or engine that shows what you're capable of will. Work at your craft every day. With programming, the amount of knowledge that's needed to complete a task, and the amount of work required, can sometimes seem overwhelming. But as long as you're not lazy, you have a pure focus, and you keep coding (even during the times when it gets dull and boring), you'll be able to finish what you started. I know this from experience. (-:

