Interview with Hans-Joerg Schulz

Born in Rostock, East Germany, I grew up without computers or any fancy electronics beyond a black-and-white TV. This all changed with the fall of the Berlin Wall: used home computers showed up and I taught myself coding on a Commodore 16. During my high school years, I received a scholarship to attend the Wayland Academy in Wisconsin for one year, before graduating in Germany. In these years, I already put my programming skills to use for science fair projects and the like. Fun stuff! After graduation, I started out studying computer science and mathematics with special focus on theoretical computer science at the University of Rostock. It was in this context that I heard about graph theory. Over time, I got more and more interested in graph drawing, at first, and then later in graph visualization and finally switched my focus to computer graphics, to pursue this and other visualization topics. I received my university diploma (MSc equivalent) in 2004 and my PhD in 2010, both with theses on graph visualization topics. My studies and research for both were supported by scholarships from the German Protestant Church’s Academic Program and the German Research Foundation. During and after my time as a PhD student, I had the opportunity to work with fabulous people at the VCL @ IBM Research, at the DIMACS Center @ Rutgers University, with the Caleydo Team @ TU Graz, and with the Agile Surface Engineering group @ University of Calgary. I’m currently working at the University of Rostock on a project funded by the German Research Foundation to visualize heterogeneous information landscapes, containing multiple interlinked data sets from various sources. As a hobby, I maintain the treevis.net website, which is a visual bibliography of tree visualization techniques.

What are you working on right now?

I’m not a one project at a time kind of person. I usually have tons of stuff going on in parallel. Currently, the main theme of my work is to develop a map-like interface to large, heterogeneous data landscapes. This is a challenging project, which will keep me busy for a few years. It includes not only means to map out heterogeneous data, but also to derive suitable levels of data granularity, to link them to adequate visualization and analysis
techniques, and to provide ways for navigation and orientation in this visual multi-level data map. For this project, I’m currently working on ways to structurally and visually compress the data landscape, to provide different levels of guidance in large data landscapes, and to integrate meta-data with the visual map of the landscape. Aside this larger project, I’m also working on some hobby projects, such as a design space for tree layouts, a genetic algorithm approach to create tree visualizations, dedicated layout algorithms for degenerate trees (extremely deep, extremely wide, extremely regular, extremely unbalanced,...) and a pipelining for graph drawing.

Which work/exhibition/image have you seen recently that really excited you?

Leonor Antunes’ walk around there. look through there (2011) in the Museum of Contemporary Art Chicago. It’s a very interesting piece of art from a geeky computer graphics and rendering point of view, as the solid 2D mesh under the roof is made to “drip-down” into a 3D structure and then projected back into 2D using spotlights that cast shadows of the 3D shape onto the walls. Similar processes can be found, for example, in terrain rendering, where a 2D mesh is extruded into 3D according to a given height field and then projected back onto the 2D screen depending on the camera position. Yet, while the processes are similar, the end result of the rendering is only the finally visible 2D projection, whereas the beauty of the artwork lies in the combination of all three stages and the visible and invisible interactions between them.

Who do you admire? Why...

It’s hard to admire someone these days. The minute you admit looking up to someone, some dirt on them turns up on Wikileaks & Co. That being said, I’ve always been a huge fan of Linus Pauling (*1901,†1994), who was a marvelous and inspiring researcher and a ceaseless campaigner for peace in my eyes. If there is a role model, a prototypical scientist I try to follow in my own small ways, it is him.
What’s your favorite motto or quote?

For everything there is a season, and a time for every matter under heaven. (Ecclesiastes 3:1)

I find time to be a fascinating concept. Yet, I’ve reservations against the modern mechanistic view of time as a man-made quantitative hierarchy of seconds, minutes, hours, and so on. Everyone know the experience of solving a problem one has worked on for days in a matter of minutes, just when the time was “right”. Or that sometimes time seems to fly and at other times it just drags on forever… Hence, I like to perceive time more as a quality and I strive to experience more “quality time”, which is when I can do things at the time that is just right for them. Then things come easily and without effort – be it lines of code, ideas, or sleep.

Your favorite art work of all time?

This is hard to pinpoint. My favorite kind of art is the one that’s not so much meant for humans to enjoy, but for the eyes and ears of a higher power. You find this kind of art in the architecture of the Cologne Cathedral or in the music of J.S.Bach – both achieving a perfection, being ripe with symbolism, and providing a depth which makes all else look plain and simple. It is this kind of art, in which you can get lost and discover new aspects every time you enjoy it, without ever grasping it completely.

What is your idea of perfect happiness?

Out in the nowhere after a day of hiking and climbing. Tired to the bone, every muscle aching. The only light coming from the stars and the bonfire. And the stew on the fire is almost ready… No, seriously, I love being outdoors and if there’s a “happy place” for me, it’s the wilderness in front of my own door or at the other side of the world. Hiking the Overland Track in Tasmania (2006), the Tour Mont Blanc in the Alps (2007), the Grohmann High Altitude Trail in the Dolomites (2008), parts of the Great Wall in China (2009), or the East Coast Trail in Sweden (2010) was pure bliss for me.
If not a computer scientist, who/what would you be?

I guess I would be a gardener. Not just because it also has to do with trees, but because I stem from an old family of gardeners. For example, my great-grandfather was the gardener of the grand duke of Mecklenburg-Schwerin and attended to the gardens and parks of the castle in Ludwigslust in northeast Germany. My grandfather professed in landscape gardening and orcharding, and my father still tends to his little tree nursery in the backyard. I’m very interested in permaculture and would love to work outside all day and get my hands dirty moving soil and planting and composting, instead of sitting in front of a monitor.

What/who is your greatest fear?

After the so-called Climategate incident, I was wondering what (if anything) could cause a Visualizationgate. Is there some invalid dogma, some faulty seminal user study, some doubtful assumption, which underlies the discussions and results of our community? Have I been lured into thinking along its lines myself? This fear leads to a healthy questioning of one’s own work and the design principles and axioms one holds dear, yet which may not necessarily be true.

Images courtesy of Hans-Joerg Schulz