Rhino UK User Group Meeting 2019

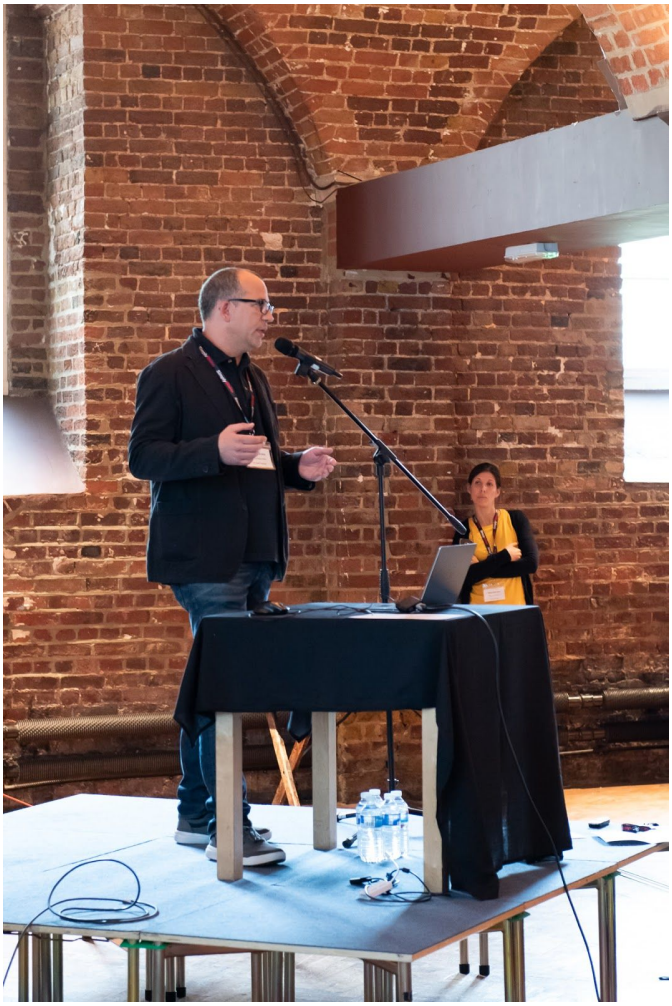
Simply Rhino held the 2019 Rhino UK User Group Meeting in London on 12th June 2019. Thanks to all our presenters, event partners and attendees for helping make a great day celebrating innovative designs, collaboration and software development within the Rhino3d community.

A write-up of the days presentations follows, the notes were kindly taken by UGM meeting attendee Douglas Cameron.

1. **Carlos Perez** - McNeel

The first presentation started with thanking all the attendees for their presence. Carlos was here to talk about McNeel & Rhino. Everyone was given a brief history and description of the company and software, from nautical architecture to current multi-disciplinary sectors varying in design requirements and tools. It was nice to hear that Rhino is focused on user experience with no external funding interrupting this philosophy. The 450,000 users of Rhino will no doubt be happy to hear this philosophy and that the continued support provided does not go through a difficult bureaucratic process; licensed users are supported by experienced technicians and developers. Coupled with this the teaching of Rhino is spreading far and wide with user meetings becoming more common and busy.

The world in which Rhino positions itself has allowed it to have an open source style of collaboration with such projects and websites like Food4Rhino giving a platform for open discussion and development. ((I think)) this is one of the uniquely attractive sides to McNeel and Rhino – they are a group of honest and caring developers that strive to provide the best product to their users which is often demonstrated throughout their daily working life and filters down through the systems employed for development and distribution.



As the company moves toward releasing Rhino 7 some hints at what to come are given. Such as, users with one license being able to use it on both Mac and Windows systems. Rhino will have the exact same functions, look and operation on both systems in Rhino 7. A small demonstration of a new QuadRemesh plugin with SubD modelling displays new tools flawlessly. These tools are currently available on the WIP release(s).

The demo of real time ray trace rendering coupled with new VR technology and apps looks very exciting indeed. Carlos opened the presentations with succinct, clear demonstrations and information about Rhino that whet the appetite for what was to follow during the rest of the day.

2. **Chris Johnson** – Pentland Brands

Chris is responsible for industrial design at Speedo and is here to discuss their new goggles, the Fastskin Pure Focus, and how Rhino was core to its development and creation. Chris showed a short video highlighting key elements of the goggles. Anyone who has followed swimming would recognise the Fastskin technology used in previous Olympic games and Chris gives a brief explanation of the design of Fastskin highlighting the difficulty of being an athlete in a fluid medium. This sets up the foundation for understanding the need for technological progression and how it improves performance in the water.

Here, Chris explains, is why Rhino is so important. The equipment used by swimmers has improved to such an extent that the Olympic records and times being recorded now wouldn't be possible without it.

As viewers look on and learn about fluid dynamics and physics it is becoming blatantly obvious how Rhino has played a part in the new design of goggles. With the various plugins and modelling techniques available to use in Rhino the team at Speedo are able to test and design at a pace that makes these Olympic records and medals partly their doing and their victory. While teams for Formula 1 racing are shaving milliseconds off lap times with technological

innovations Speedo are using Rhino to do the same. Luckily the Speedo team, like the Rhino team, are just as caring for the users at the top of their game as much as those underneath them. From small club level to Olympic level the goggles are universal and no-one is forgotten in the development. The Rhino philosophy seems to permeate through its users and is core to success and exemplary products.

3. **Pablo Zamorano** - Heatherwick Studios

Opening with a stunning image from the new structure, Vessel, at Hudson yard, NYC, Pablo makes it abundantly clear the love his team/studio have for Rhino. Geometry for real world fabrication, he explains, is coupled with Rhino at Heatherwick Studio. Pablo gives a short history of the scale of projects from Heatherwick studio – from furniture to large scale projects. We are given a glimpse into the life of the studio and a view into the heart of the studio; the workshop. As we learn that the focus is often on the feel of the object and that to touch the object is core to the studio, we start to understand the importance of Rhino in the fabrication of their designs. We learn about geometry and computational design inspired by nature. This is apparent for the Hudson yard project – nature inspires and Rhino is their tool for bringing these ideas to life.

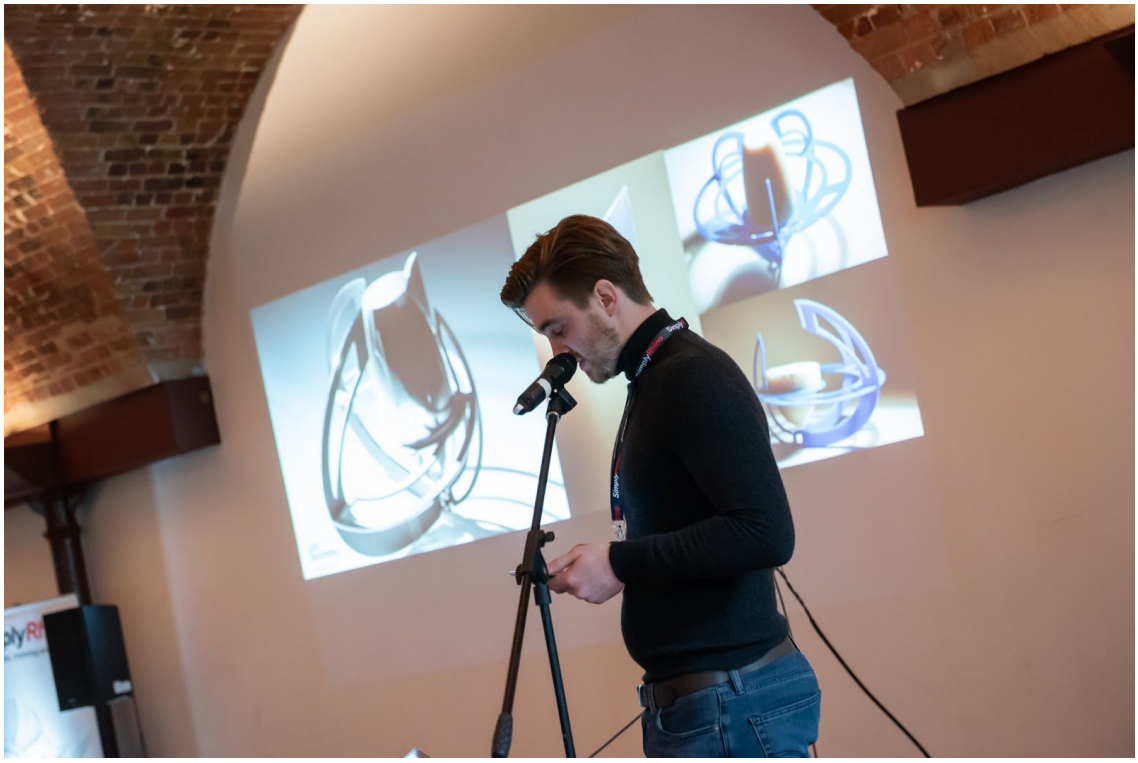
Rhino, Kangaroo and other tools are integral to the prototyping and documenting the evolution of the Vessel project. Conceptual modelling, especially using Rhino, is fundamental to certain Heatherwick designs and prototypes. Seeing the beginnings of the Vessel project and its logic throughout the design phase was inspirational in itself. We are privileged enough to be shown a

short video showing a lot of the modelling and Grasshopper scripts used by the studio and given a brief explanation of process' used alongside engineers using the same software and systems. The video as well as Pablo's careful presentation succinctly show how plugins such as Ladybug and VisualArq are fundamental to the project too. It is a pleasure to watch Pablo carefully breakdown and explain a process for fabrication that otherwise appears near impossible without Rhino and Grasshopper.

4. **Lee Simmons** - Lee Simmons

Lee, an artist often using metal to produce sculptures, explains how he has been using Rhino for 15 years to fabricate his work. Rhino has been a great help in creating his work and it becomes obvious his university experience was where he first started using it. Physical and digital modelling is extremely important to his work and we are shown various videos of vessels, usually for holding liquids, which were designed with Rhino. Much of Lee's work is cast with metal and he gained his reputation creating sculptural work in silver. Rhino has facilitated all of this according to him and helped him grow - especially his time spent when perusing 3D printing.

Examples of his commissions are presented by his videos and are impressive in both presentation and design. The manufacturing for Lee is a very impressive part of the work flow and the various commissions show different styles of fabrication all starting with designing in Rhino. The examples we are presented with show an evolution from small scale projects to large collaborations for projects such as for Damian Hurst's studio in London.



Videos showing how he works from Rhino model to final piece are informative and educational. With presentations and videos like this it's obvious he knows his audience - the descriptions of computational design are just as important to the audience as the final pieces. The educational elements of the presentations are just as interesting as, for example, the metal sculpture that intersects a building. The plethora of stunning sculptures and designs being presented yet again highlight how the outcome would have been different without the use of Rhino.

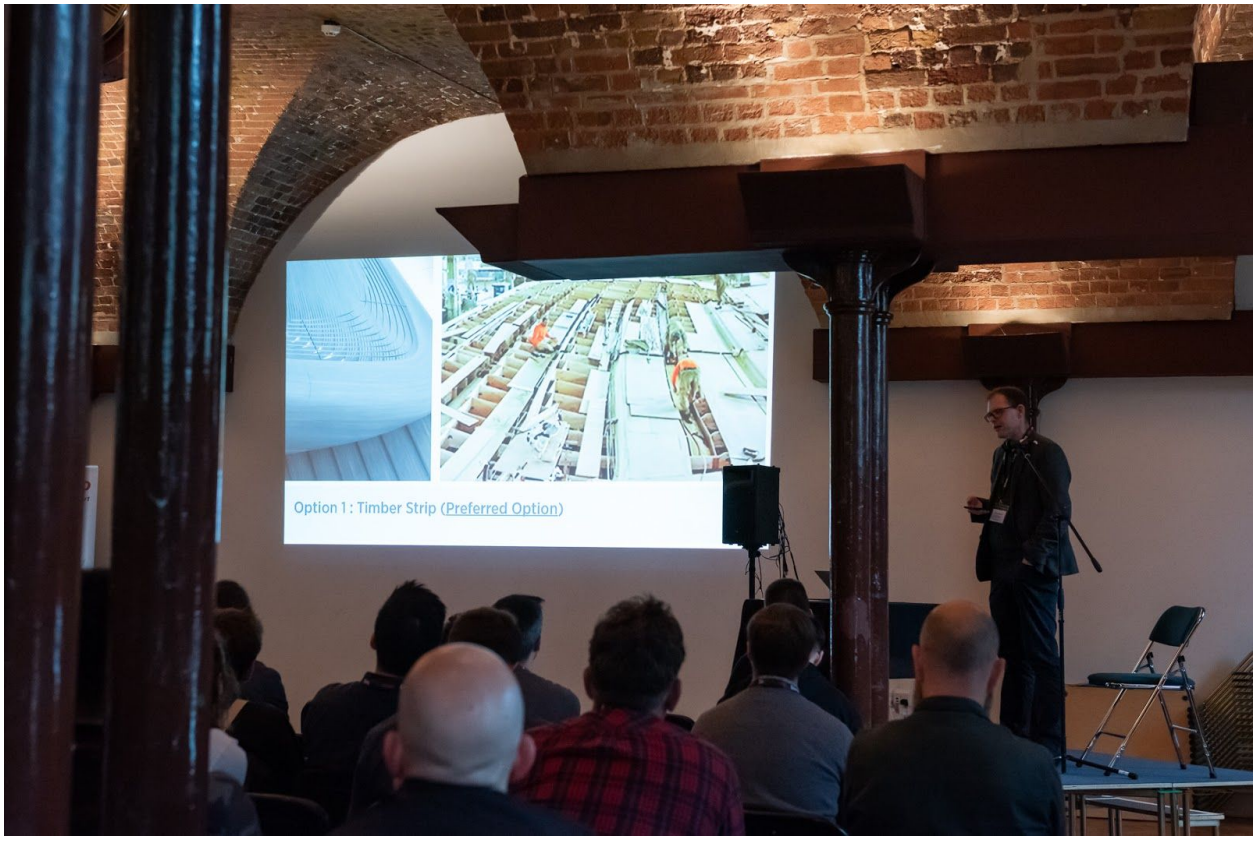
5. **Graham Hench** – Swarovski

6 years ago, we are told, was a pivotal moment for Swarovski. This is when they started using CAD and specifically Rhino. Swarovski have now designed and developed a plugin for Rhino called Ennoble. A live demonstration of the plugin, which they spent 2 hours presenting in the past, was masterfully displayed in under 30 mins. We get to watch swans being covered in crystals in a bespoke design. Anyone who has ever struggled with or been interested in orienting objects to a surface in Rhino will be excited with the development of this plugin which also works with Adobe Illustrator. A catalogue of objects can be utilised very quickly to cover a separate object. In this way clients of Swarovski can now have bespoke designs made for them in just a few hours, previously this could have taken up to 2 weeks as it had to be done manually.

The demonstration perfectly explains the benefit of the plugin to Swarovski but opens up many options to other companies and professions where it could be utilised. The ability to populate an object with other objects extremely quickly is nothing short of incredible and proof of parametric design at its greatest.

6. **Oliver Salway** – Softroom

Oliver doesn't hesitate in introducing the meeting to the wall he has been a large part in designing. The wall called 'Flow wall' is situated in the new Istanbul airport. It is the longest parametric wall at 1km long. The wall knits together lounges and various areas of the airport in a flowing undulation that is pleasing to the eye. Drone footage and photography carefully explain the scope of the project revealing the courtyard feeling and 5.5km of LED lights that are part of the whole design. Elements of the wall throughout reflect design used in Islamic art & design which reveal the inspiration behind various elements.

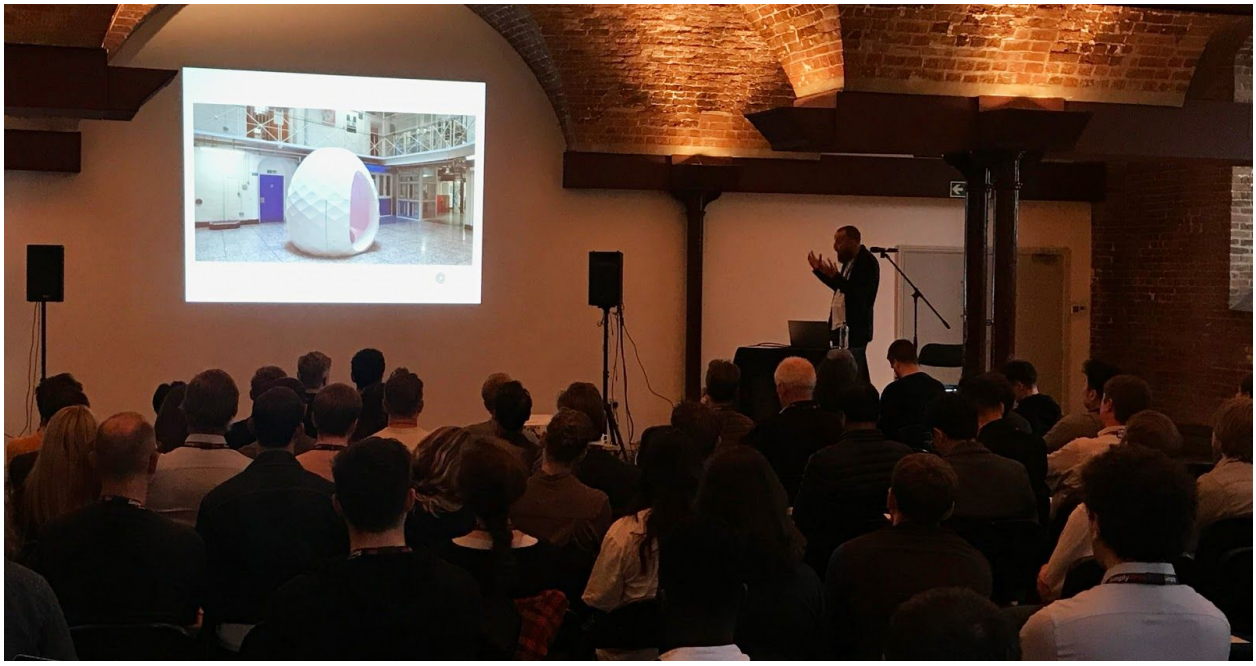


The parametric design tools used to create and fabricate the wall are of huge importance to the project. The wall could never have been completed in the extremely short time frame that was provided without the use of Rhino and parametric tools – I'm sure Softroom are proud of themselves and the systems they employed for the project. In just a few months Oliver and his team were able to use Rhino and Grasshopper to finish a project that to most designers would have seemed impossible to complete in the largest airport in the world. The process was a constant to and fro from Rhino and various other software including VR. Details such as seating and LED lighting would have been a much longer process without the use of Rhino and the various software used.

It is amazing to think it took just 4 months to complete the installation. As the meeting is introduced to the fabrication process the complexity of the project is revealed. It was a pleasure to see from Rhino model to installation how the project has been so successful.

7. **Karl Lenton** – Seeds

Karl is the creative director of Seeds and is interested in Happiness and well being. This interest is firstly explained through a history of the penal system with a particular concentration on Jermey Bentham's Panopticon. At this point the meeting is introduced to the harsh reality of the brutal outcomes due to design of prison buildings. Control and observation in these buildings, we are told, have no room for humanity. In almost 170 years the design of prisons has barely moved. Various examples such as Mill Bank Prison 1821 and HM Pentonville 1842 have proven to be detrimental to physical and mental health. They even driven people mad. In many cases "modern prisons" have the same effect.



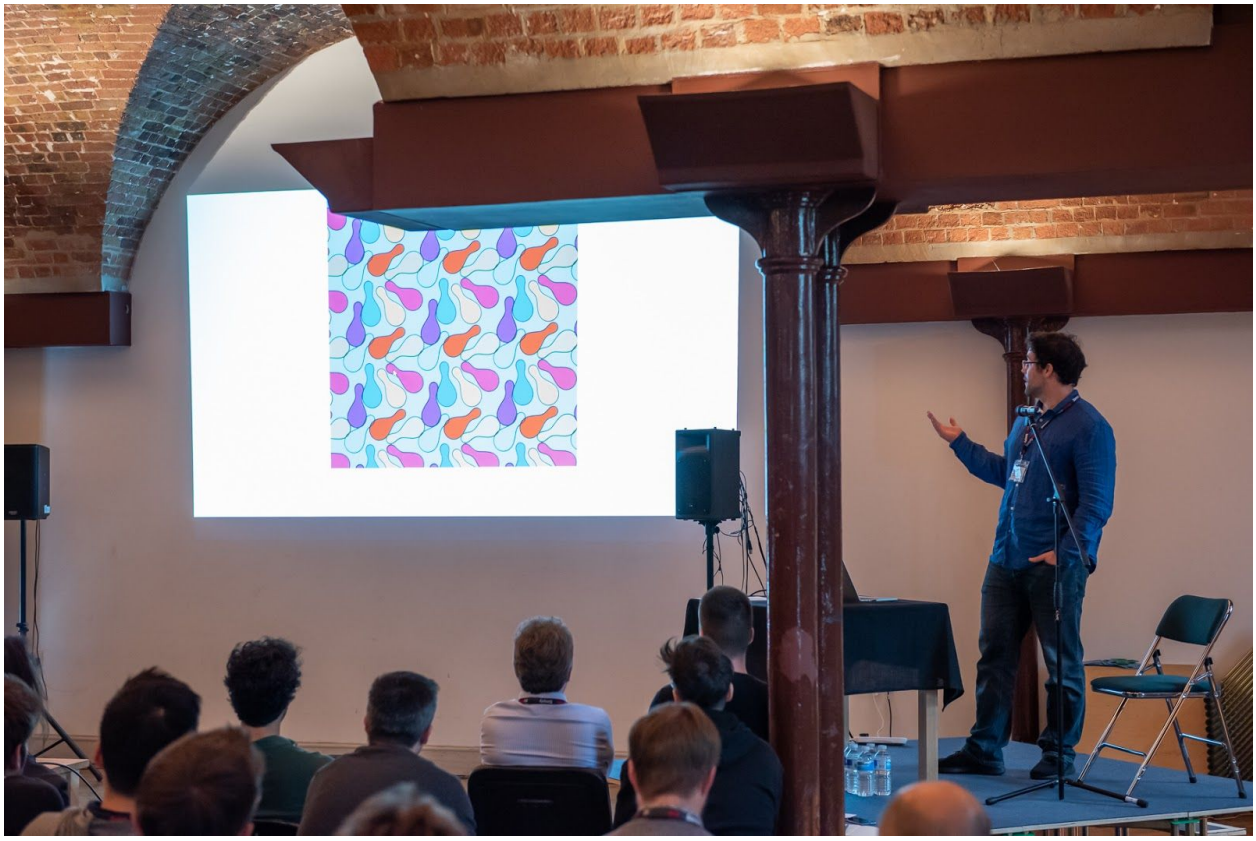
Thankfully Karl is working hard to help alleviate these issues. He has designed a pod like structure called the 'Seed' which can be installed in prisons to offer some sanctuary in various ways. It creates a space to have a conversation and escape the noise and difficulties of current prison design. It has other ways of offering sanctuary to prisoners, careful design of lighting and audio properties (in collaboration with the NHS) aim to stop mental health issues arising. The user can also use an app to tailor the Seed to certain requirements. It has been recognised as a successful installation for spaces other than prisons. Having been installed in Scottish mountain areas and at train stations in part due to its easy and clever construction it has had some very positive outcomes.

Karl has been contacted by plenty of people representing various companies due to the Seed being recognised as a very fine piece of design and engineering with great benefits. At the end

of the presentation a question comes from the audience “where does Rhino come into all this?”. Karl responds succinctly by explaining Rhino has made this project possible at every step and wouldn’t have been done with such success without it.

8. **Daniel Piker** – McNeel - Kangaroo

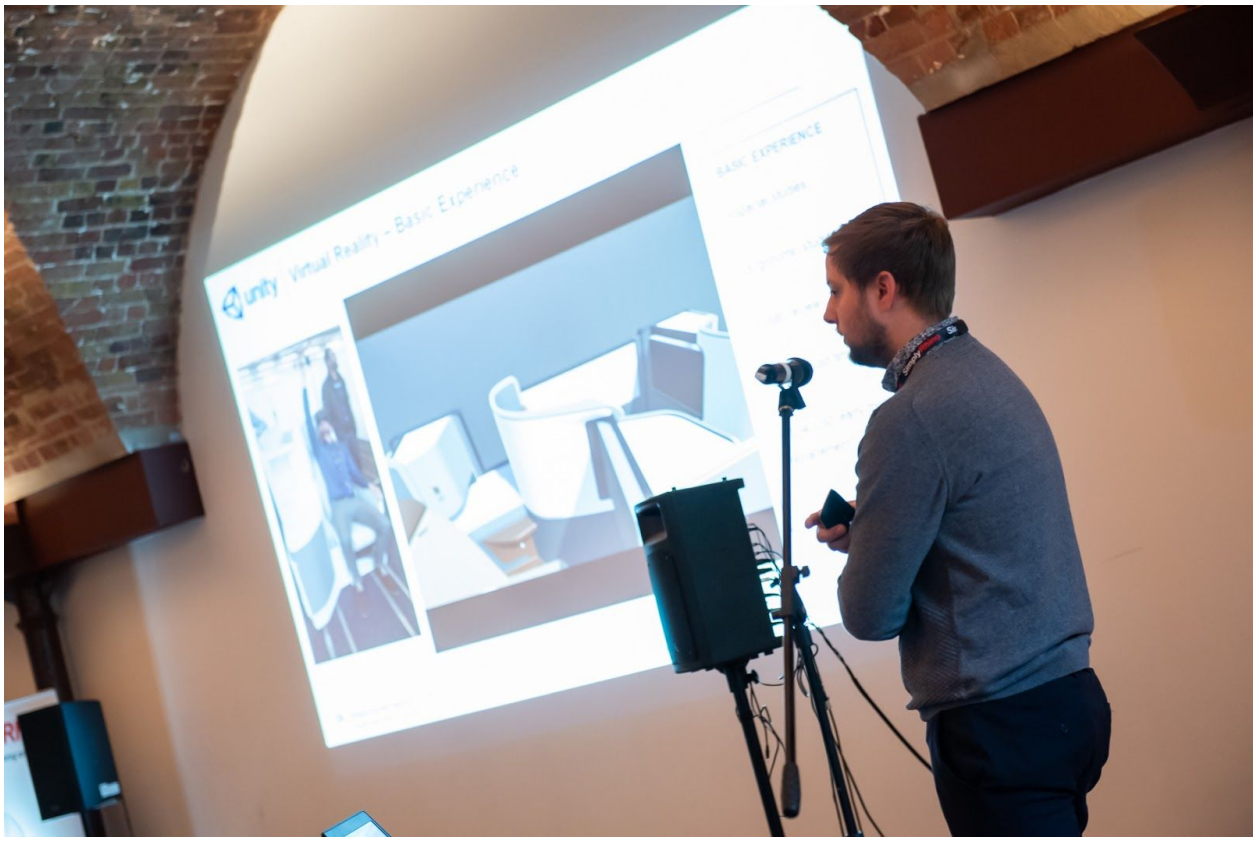
Daniel doesn’t hesitate to get stuck in straight away with a live demonstration. Immediately Daniel shows a Skeleton thickener with fantastic results. We are shown how to morph a model using a cage around an object. Daniel demonstrates transformation to deform a model while preserving angles. It’s hard to keep up with all these new methods for modelling but it’s easy to see how valuable they are. Final results of functions and tools are produced within a few short moments. This is the point though – we are not here to be educated on how exactly how to model in Rhino, step by step, but rather what the future has to offer. The training on how to do it is for other events held in classrooms.



Daniel is obviously a very valuable asset as his demonstration with Kangaroo continues. The audience from different fields of design and fabrication are quite obviously very interested in the successful demonstration. Collision detection in NURBS, explanation of how good a tool it is for

pattern design, bug fixes, simplification of older functions, improved remeshing, more topological flexibility and freedom, help for inflatable structures, finding simple ways to create unrollable geometry… the list goes on. It's not good to leave questions unanswered but - where would we be without characters like Daniel working with McNeel? What we do know is that the future is bright.

9. **James Woodington** – Safran Seats UK



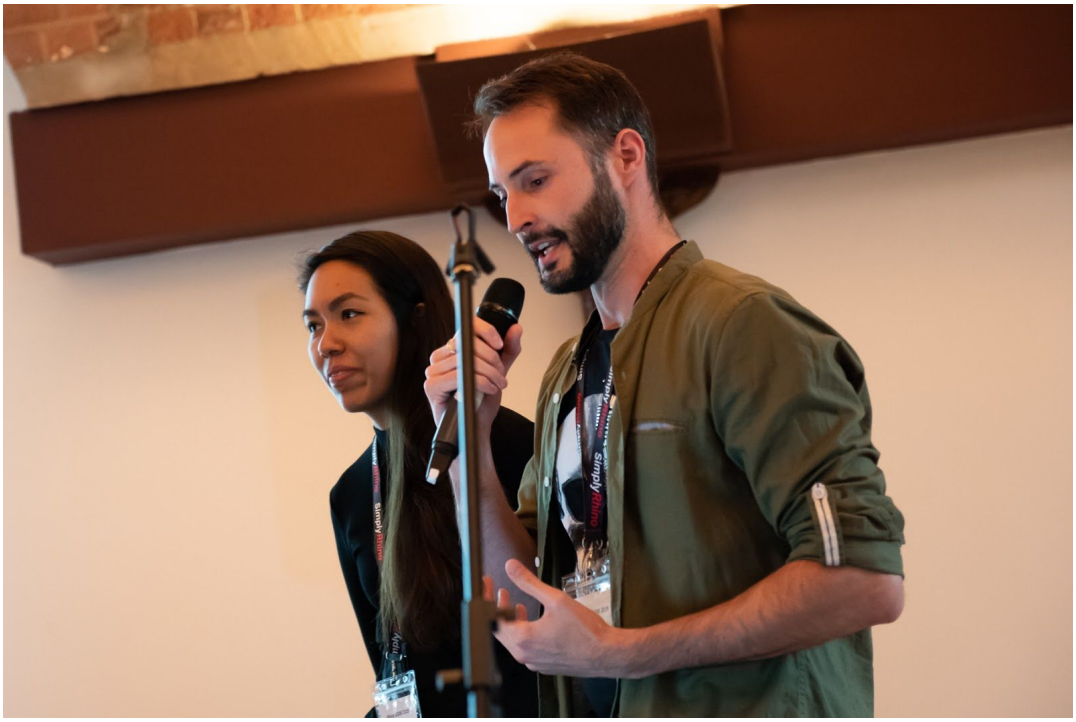
James and the company work in aircraft interiors but can develop designs for entire aircraft on their own. They provide bespoke and catalogue products to a wide range of airlines. We are shown a selection of seats for airlines from business class to economy. It doesn't take too long before we see Rhino and Vray at work once again which reveal themselves to be core for the company moving forward. James explains that 'other software couldn't deal with it' and the move to Rhino and Vray has been incredibly positive. James can provide bespoke renders for clients in a much smaller time frame than before and this new timeframe has benefitted all those involved on projects. The use of VR has also radically improved their workflow. Couple the VR with Rhino & Vray James estimates it has saved millions of pounds in just 2 years. Once the model has been designed in Rhino it can be taken into Unity for a VR experience which allows

clients and designers to appreciate the design even further. James explains that industrial information is also created in Rhino.

It's hard not to think of James's presentation as an outstanding advert for Rhino. His explanation of time saving, file size reductions and money saving couldn't make it any clearer that it's an incredibly valuable tool.

10. **Carlos Bausa & Dirce Medina** – Wild Design Studios

Carlos and Dirce explain that their studio first started as a dream while working for many other high end architectural and design firms. A little experiment turned it into something much more than a dream though. We see a history of the dream starting from a wedding photo to designing rings for each other. As we are shown various rhino models and renders, we can start to appreciate the goal of their initial project – to design something much more personal than they could otherwise purchase. Grasshopper scripts start to reveal the design and fabrication process behind each other's wedding rings. They show lots of testing with 3D printers and then castable resin samples. They transformed their kitchen into a laboratory as the design addiction grew. The problems and issues with fabricating jewellery are explained and the Rhino models on show describe how they overcame these issues.



Soon they were testing many ideas for fashion creating ideas in Grasshopper that can be 3D printed directly. Crowns, ornaments and bracelets magnificently shown through renders and digital models start to appear on every other slide of the presentation. Then we hear of them

winning a competition for an installation in a courtyard. It is now clear they have huge talent and ability across many design areas. The winning design which was generated by many panels is explained using the Rhino models and Grasshopper scripts. They have a naval engineer to help with cables that hold the installation and show how they worked many hours, physically, with their hands. All done on site to achieve a successful installation. It looks like hard work but the results are worth it.

To finish we watch an animation of the parametric design method they employed with an explanation that has Rhino at the core of it all. It's a great way to finish the final presentation which follows on from many great presentations. Rhino is incredibly valuable to all the presented designs today and the future products that we shall have the joy of experiencing in the future.

Thanks again to Douglas Cameron for these notes.

The Rhino UK User Group Meeting will return in 2021. In the meantime, don't miss out on all UK Rhino event updates including, Shape to Fabrication (which returns in 2020), the Grasshopper User Group Meetings, Rhino with AR/VR meetings and more - to be amongst the first to know about these sign-up to our monthly e-newsletter here.