



Sonicules: Designing Drugs with Sound

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Abstract.

SONICULES was commissioned for the Festival of Ideas, University of York in June 2016, and utilised modular and analogue synthesis throughout, both in sound design of a specially designed video game as well as during an interactive audio-visual performance.

SONICULES is a live performance, which engages audiences with the process and challenges involved in the design of new anticancer drugs. It centres on current research in the Departments of Electronics and Chemistry, which is investigating the potential use of spatial sound to speed up the drug design process.

The specially commissioned performance takes its creative impetus from interactions between biochemical data, interactive immersive surround sound and audio reactive visualisations. Additionally audience members experience for themselves the powerful potential of sound to speed up the design of new drugs using a specially developed game incorporating 3D graphics and sound.

Sound design material in the project is developed using Eurorack and Serge modular synthesiser, in both the demonstrator system (game) and immersive audiovisual show. Development of an audio-visual molecule-docking game was made integrating Max7 and pyMOL (freeware package used by chemists).

Project video: <https://www.youtube.com/watch?v=1SzWTEPc3j4>

More information: <https://sonicules.wordpress.com/>

Keywords: Separate them by commas, please.

Sonification, data, drug, design, audiovisual, live, game, engagement, art, science, communication.

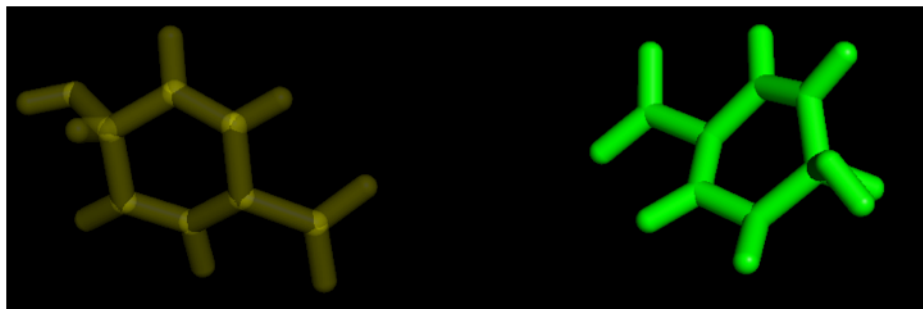


Figure 1. Screenshot of Level 1 gameplay - drug molecule manipulated by the player is pictured on the right-hand side, and the target position pictured in gold on the left-hand side of the screen

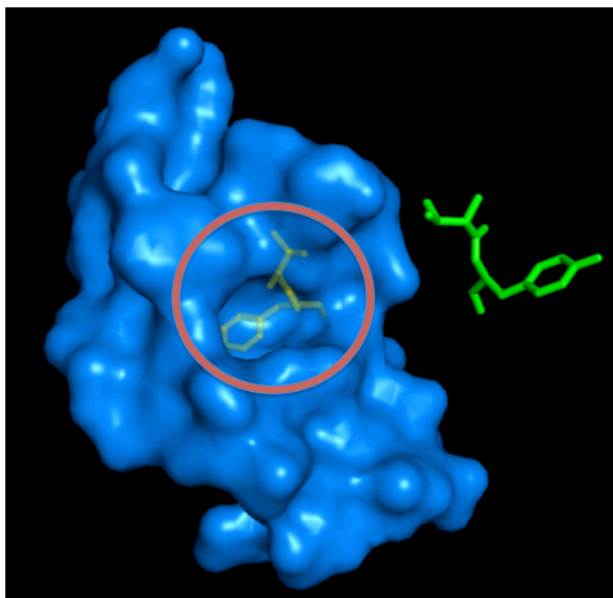


Figure 2. Screenshot of Level 2 gameplay - drug molecule manipulated by the player is pictured on the right-hand side (green), and the correct target position (gold) within the target biomolecule (blue) on the left-hand side of the screen. The 'target zone' is indicated by the central orange circle.

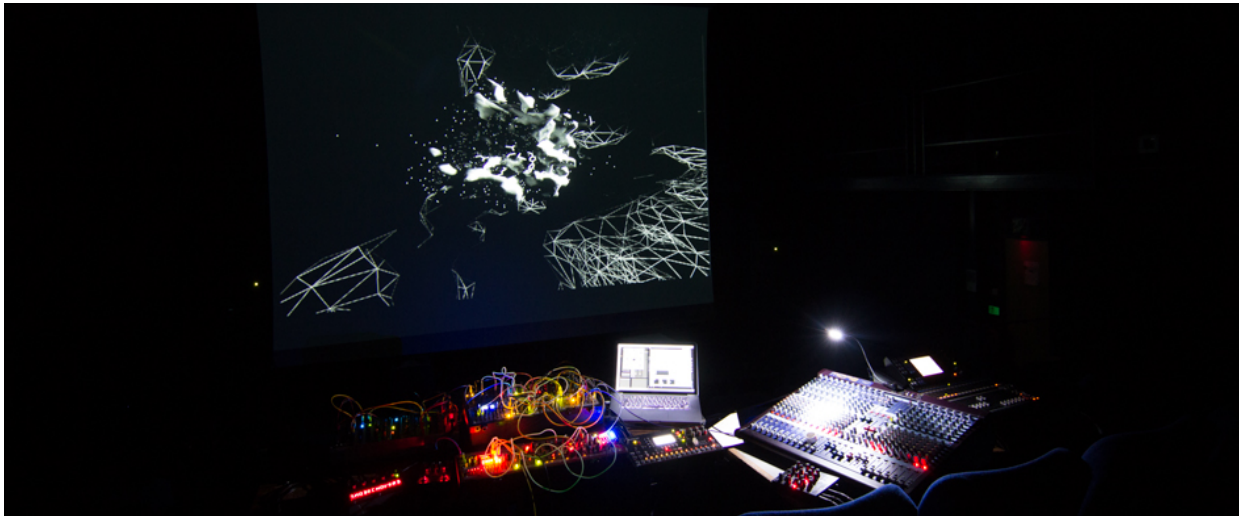


Figure 3. Picture of live performance system

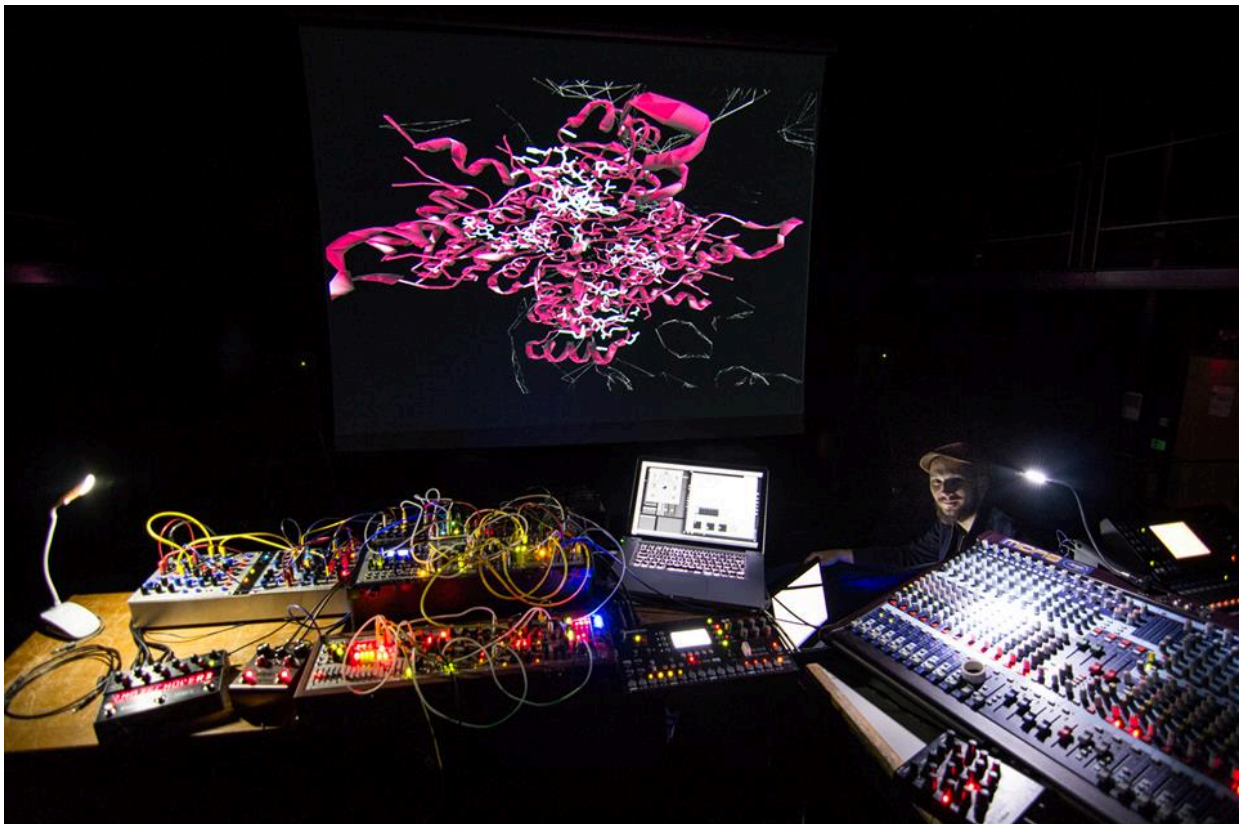


Figure 4. Close up of live performance system including Serge Modular, 2x Eurorack cases, Octatrack, effects, mixer and laptop with Max/MSP running Ircam's SPAT for panning.

Bibliography

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WWW1. PyMol: A molecular visualization system <https://www.pymol.org/>

WWW2. Max7: visual programming environment <https://cycling74.com/>