

# Sound and Audio Engineering Research Group SAERG

## Mission

The **Sound and Audio Engineering Research Group (SAERG)** embraces knowledge and innovation in the fields of sound recording and production, sound analysis and synthesis, audio electronics, acoustics and psychoacoustics, digital audio processing, audio forensics and audio data management and distribution. The key motivation of the group is to develop novel engineering knowledge and technique for the creative audio industries, as well as engaging in innovative design in all facets of the audio engineering field. Furthermore, industrial collaboration is key to the success of SAERG.

## Objectives

1. To develop new engineering knowledge and technique for the creative audio industries
2. To engage in innovative design in all facets of the audio engineering field
3. To engage in music production activities for educational use and commercial release
4. To embrace industry collaboration in sound and audio engineering
5. To participate in knowledge generation in sound and audio engineering, leading to the acquisition of internal and external research funding
6. To disseminate research findings through key academic journals and conference presentations

Samba band recording session using a novel version of the mid-side stereo recording technique.



## Projects

**EPSRC Project** investigating dynamic range and loudness perception of commercial music with project partners including Cambridge University, Thames Valley University, BBC, DTS, Prism Sound and TC Electronic (proposal).

**KTP Project with STV International** (value £130,000) To enhance in-house engineering design capabilities for ultrasonic systems

**EEDA Proof of Concept Award** (Value £27,000) Market research for musical instrument tuning innovation

**KTP Project with AV Niche** (Value £112,000) Development of integrated interview recording systems

**EEDA Innovation Voucher** projects with Audio Analytic, Gimbalcom and Audiggle (Value £3,000 each)

**Research Enhancement Exercise** (Value £9,000) Development of gestural controllers for live audiovisual performance



## Academic Staff

**Dr Rob Toulson**, Director of SAERG, Senior Lecturer in Audio and Music Technology

**Dr Douglas Nunn**, Senior Lecturer, Audio and Music Technology, Anglia Ruskin University

**John Ward**, Pathway Leader, Audio and Music Technology

**John Martin**, Senior Lecturer, Electronics

**Yeswanth Gadde**, KTP Associate

## Collaborators

**Friedemann Tischmeyer**, The Pleasurize Music Foundation, USA

**Justin Paterson**, London College of Music, Thames Valley University, UK

**Dr Chris Mitchell**, Audio Analytic, Cambridge

## Research Students

**Phillip Richardson**, Percussion Acoustics and Drum Tuning

**Bill Campbell**, Analysing the Effects of Dynamic Range in Commercial Music

**Ali Sanaei**, Audio Forensics

**Charlie Slee**, Valve Amplification

## Contact

**Dr Rob Toulson**

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## Selected Publications

**Ward, J. 2010** – Evaluating Digital Remastering, Proceedings of The Art of Record Production Conference, Leeds, December 2010.

**Campbell, W., Toulson, E. R. & Paterson, J. 2010** - The effect of dynamic range compression on the psychoacoustic quality and loudness of commercial music, Proceedings of Internoise Conference, Lisbon, June 2010.

**Toulson, E. R. & Campbell, W. 2009** - The life and death of dynamic range: who decides how loud? Proceedings of The Art of Record Production Conference, Cardiff, Wales, November 2009.

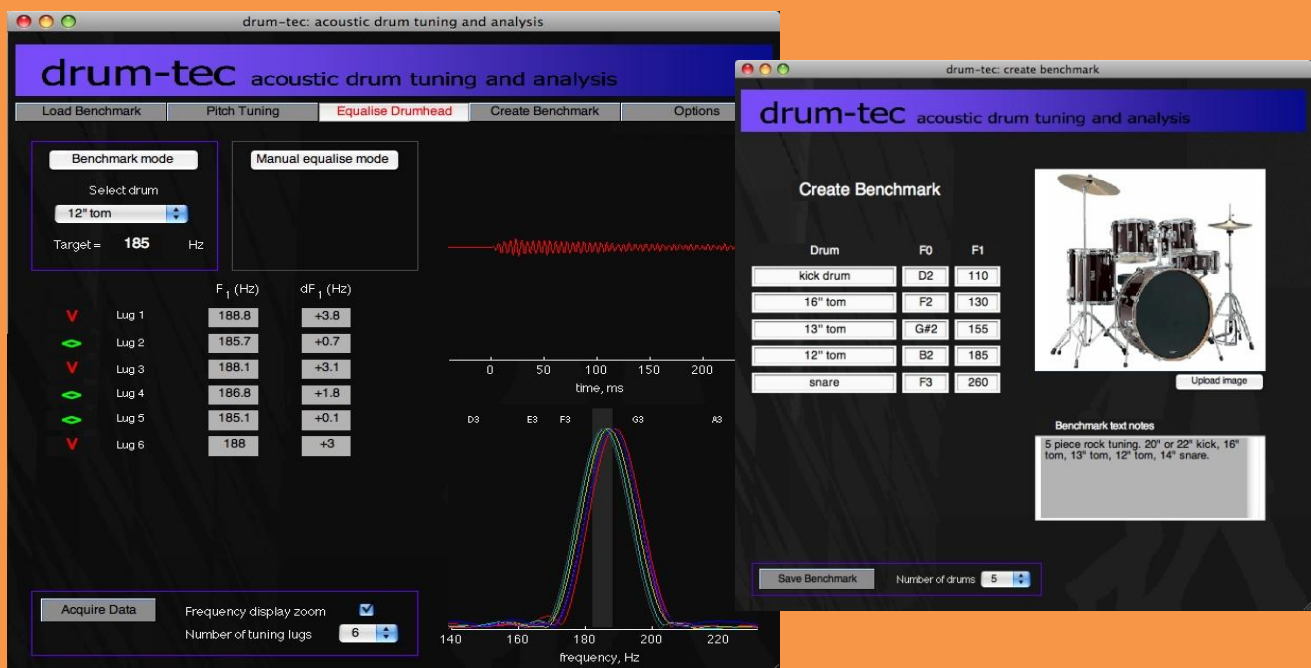
**Toulson, E. R. 2009** - Percussion Analysis and Quantitative Drum Tuning, tutorial presentation at The 127th Audio Engineering Society Convention, New York, October 2009.

**Toulson, E. R. 2008** - Can We Fix It? The consequences of 'fixing it in the mix' with common equalisation techniques are scientifically evaluated, The Journal on the Art of Record Production, Issue 3, November 2008.

**Toulson, E. R., Cuny-Cringy, C., Robinson, P. & Richardson, P. G. M. 2008** - The perception and importance of drum tuning in live performance and music production, Proceedings of The Art of Record Production Conference, Lowell, Massachusetts, November 2008.

**Toulson, E. R. 2008** - Instrument Tuning Device, International (PCT) Patent application number PCT/GB2009/002017.

**Toulson, E. R. 2008** - Advanced Rapid Prototyping in Small Research Projects with Matlab/Simulink (tutorial presentation), Proc. of IEEE International Symposium on Industrial Electronics, ISIE 2008, Cambridge, UK, June 2008.



Percussion analysis software developed by Dr Rob Toulson