

Risky Business: a tribute to Nikola Tesla (2008)

composition for electroacoustic music

with live Continuum performance and two Tesla Coils

composed by Mark Smart and Scott A. Wyatt

Continuum performer, Mark Smart

Live mixing, Scott A. Wyatt

Tesla Coil control hardware and software design, Steve Ward

Technical assistance and Tesla Coil expertise, Terry Blake and Jeff Larson

Continuum design, Lippold Haken

This piece begins with the brief comment from NY City's Mayor Fiorello LaGuardia's reading of the Eulogy to Nikola Tesla on January 10, 1943. ***Risky Business*** is a blend of studio realized electroacoustic music, live continuum performance, and live audio generated from the Tesla Coils both receiving a combination of audio and MIDI signals - combining the talents of the team. Dan Arwady contributed part of the percussive pattern heard within the piece. Steve Ward and team member Mark Smart developed a system for producing musical tones from Tesla coils built by Steve Ward, Jeff Larson, and Terry Blake. The Continuum Fingerboard, invented by University of Illinois Electrical and Computer Engineering faculty, Lippold Haken, is a musical instrument offering real-time continuous control in three directions for every finger placed on the playing surface. Scott Wyatt and Mark Smart combined the efforts of all team members for the performance of this work.

Nikola Tesla (1856–1943) was an inventor, a mechanical and an electrical engineer. He is best known for many revolutionary contributions in the field of electricity and magnetism in the late 19th and early 20th centuries. Tesla's patents and theoretical work formed the basis of modern alternating current electric power (AC) systems, including the polyphase power distribution systems and the AC motor, with which he helped usher in the Second Industrial Revolution. In 1888, he developed the principles of his Tesla coil and began working with George Westinghouse at Westinghouse Electric & Manufacturing Company's Pittsburgh labs. A Tesla coil is a type of resonant transformer circuit, generally used to generate very high voltage, low current, high frequency alternating current electricity, originally intended for wireless transmission of messages and power. Such coils have been used to conduct innovative experiments in electrical lighting, fluorescence, x-rays, high frequency alternating current phenomena, electrotherapy, and wireless power for electric power transmission.

Scott Wyatt, Professor Emeritus of Music Composition, has actively served as a faculty member of the University of Illinois School of Music teaching music composition, music theory, and electroacoustic music, as well as serving as director of the University of Illinois Experimental Music Studios for 40 years. He retired from this position in May 2016, yet remains a consultant to the Experimental Music Studios. Over the years, his research has focused on the development of a specific compositional and live performance methodology for use with eight-channel sound systems. His current research continues to focus on the application of positional three-dimensional audio imaging for multi-channel audio. He served as president of SEAMUS from 1989 until 1996, and he remained on its Board of Directors, while also continuing to serve as director, engineer, and producer of the Music from SEAMUS compact disc recording series through 2016. His compositions are recorded on CAPSTONE, CENTAUR, GMEB Cultures Electroniques Series, Library of Congress, MARK, OFFICE, Music from SEAMUS, UBRES, and VERIATZA recordings.

Mark Smart works as an engineer/technician at the University of Illinois Department of Electrical and Computer Engineering. He has played various instruments in many different styles over the years and has a longstanding interest in synthesizers. For the last 5 years, he has been demonstrating and performing on Lippold Haken's Continuum Fingerboard. Mark has recently worked with Steve Ward and Jeff Larson's Tesla coils and has worked with Steve on a new control method using Native Instruments' Reaktor software to control the coils and broaden their range of timbres.