Toyota Offers Free Access to THUMS Virtual Human Body Model Software

June 16, 2020

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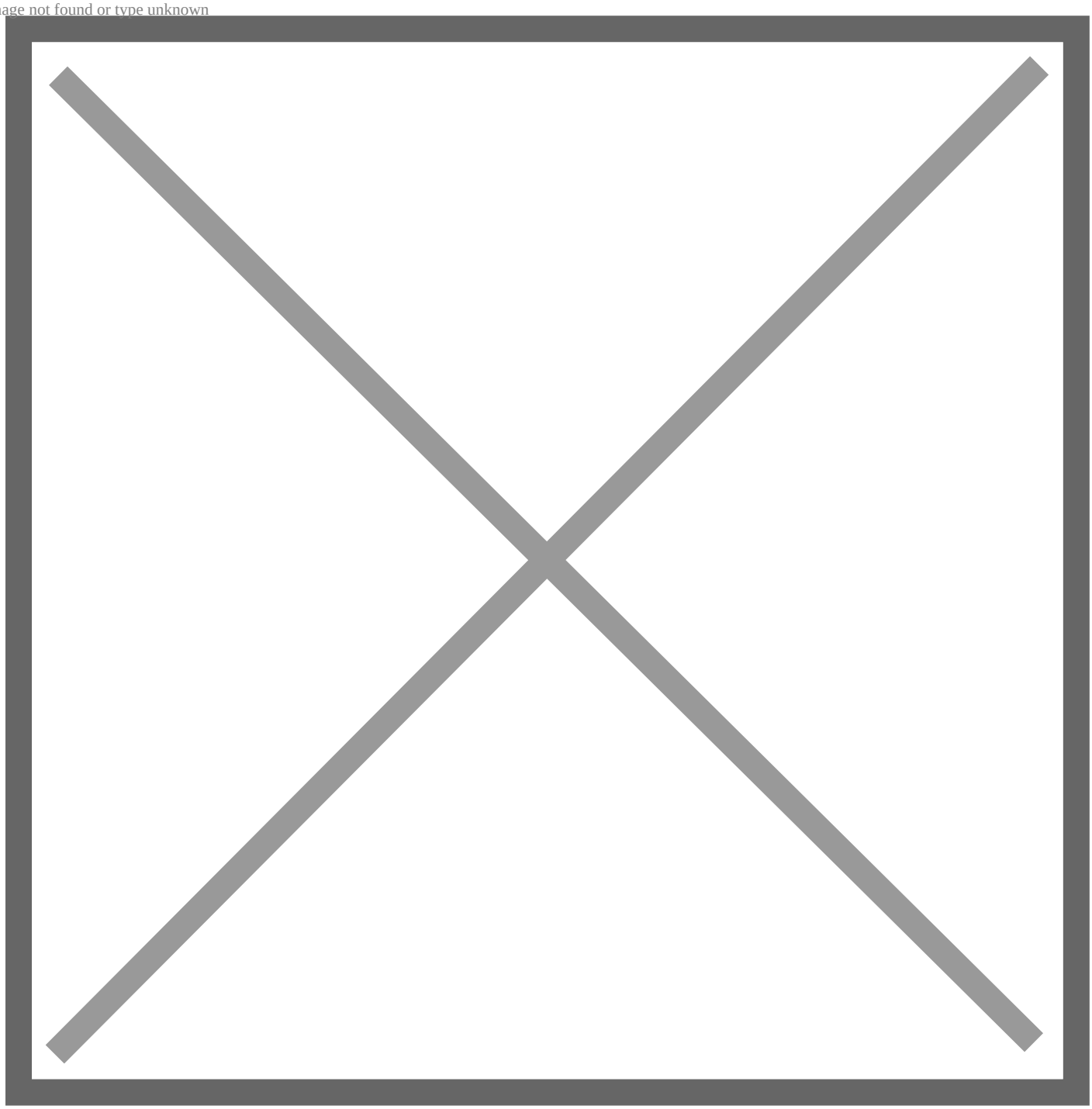
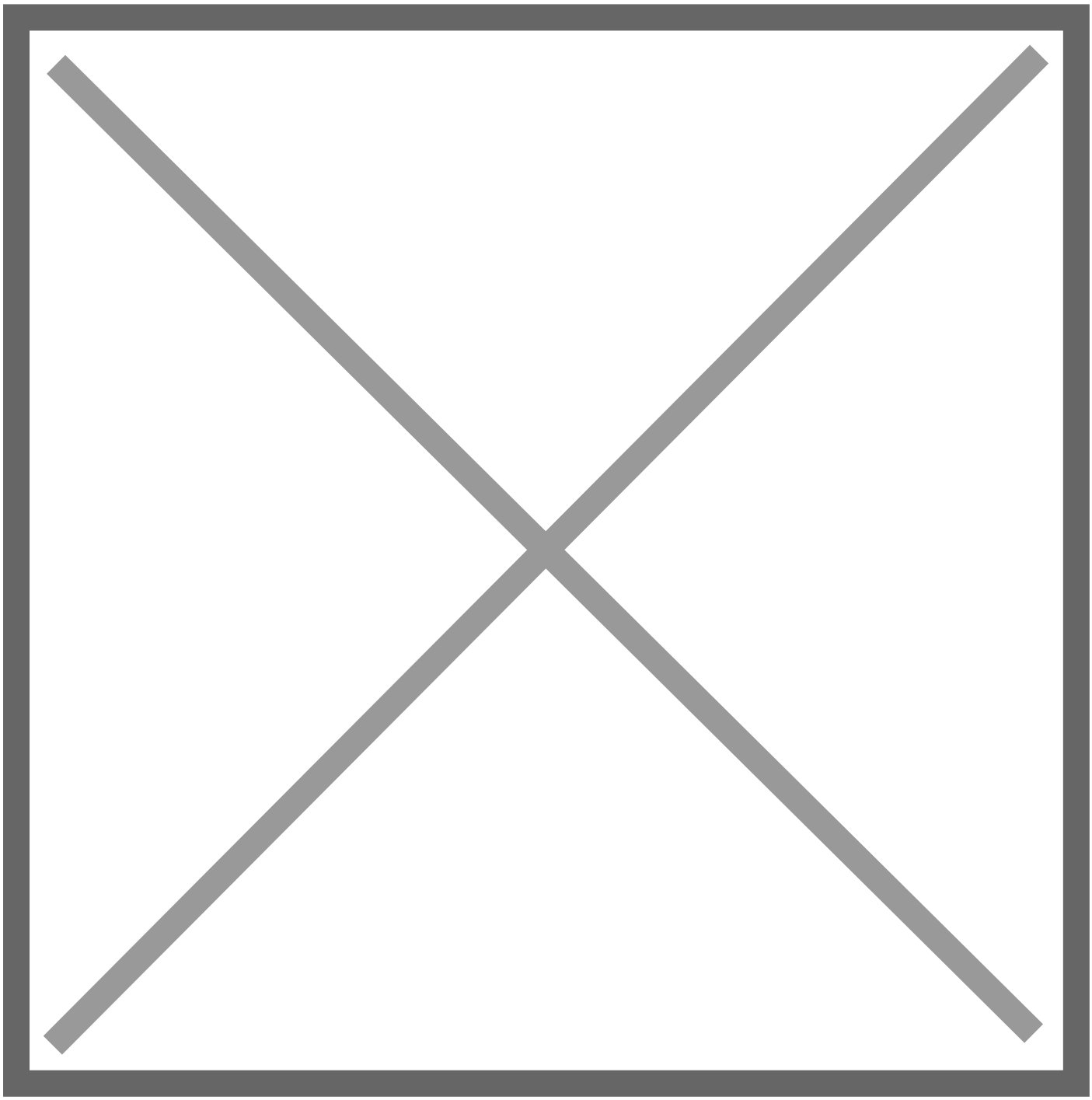


Toyota City, Japan (June 16, 2020) ? Toyota Motor Corporation (Toyota) announced today that it will make its Total Human Model for Safety (THUMS) software freely available from January 2021 as part of its efforts toward a safe mobility society. THUMS is a virtual human body model software program for computer analysis of human body injuries caused in vehicle collisions. Free access to THUMS, and subsequent use by a wider variety of users, is expected to enhance vehicle safety.

Designed to aid vehicle safety technologies' research and development, and developed in cooperation with Toyota Central R&D Labs., Inc., THUMS was the world's first virtual human body model software when it launched in 2000. It enabled simulation and analysis of injuries caused in vehicle collisions. Since then, and up until the latest Version 6 was released last year, it has continually evolved to add a range of models with different genders, ages and physiques that include skeletal structures, brains, internal organs, and muscles. Compared to the physical crash dummies commonly used in vehicle collision tests, THUMS is able to analyze collision-related injuries in more detail, because it precisely models the shapes and durability of human bodies. Conducting simulations on computers also enables repeated analysis of a range of different collision patterns, while it can dramatically reduce development lead times and costs associated with collision testing.

Evolution of THUMS



THUMS is currently used in vehicle safety research by over 100 vehicle manufacturers, suppliers, universities, research institutions and others, in Japan and overseas. It is being used to research and develop many different safety technologies, such as seatbelts, airbags, and vehicle structures that help reduce injury risks in vehicle collisions with pedestrians. Vehicle safety assessment organizations are also currently considering the use of THUMS for virtual testing in their future assessment plans.

Making THUMS freely available is expected not only to enable a greater number of people to use it in their vehicle safety research, but to also improve the usability of the software, as users make improvements to the

model themselves and share the results with others.

Seigo Kuzumaki, Fellow at Advanced R&D and Engineering Company, offered the following comment about free access to THUMS:

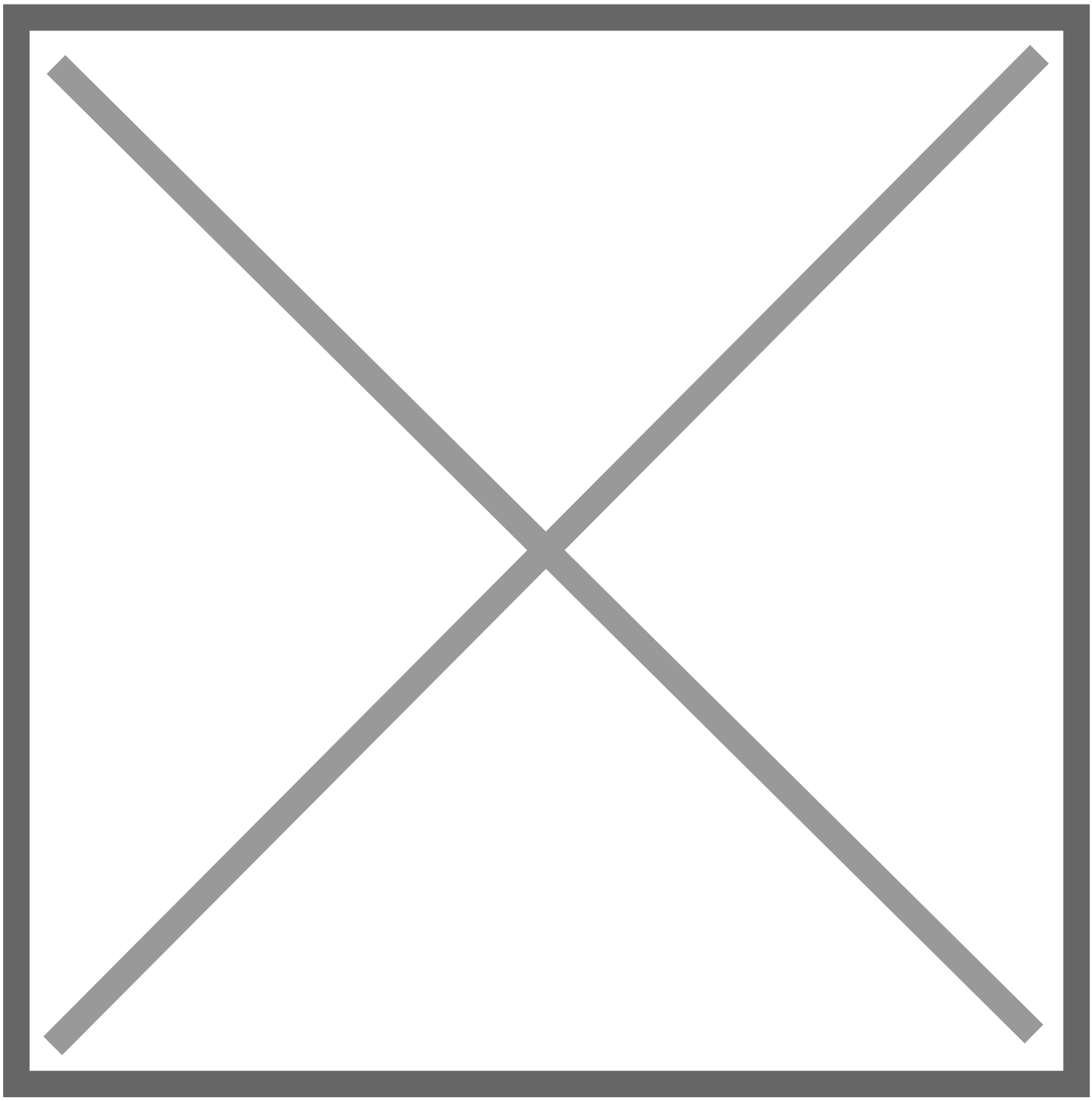
“Since the very first launch of THUMS in 2000, we’ve been making ongoing improvements and avidly working to better reproduce the human anatomy and expand the variations of models. It has now become indispensable technology to Toyota’s efforts in developing safety technologies and vehicles. We decided to make the software freely available to have more people use it, to further enhance vehicle safety across the entire automotive industry, and to help reduce traffic injuries and fatalities to create a safer society. We look forward to seeing it applied broadly in development sites and others, envisioning a mobility society with automated vehicles and other technologies, moving forward.”

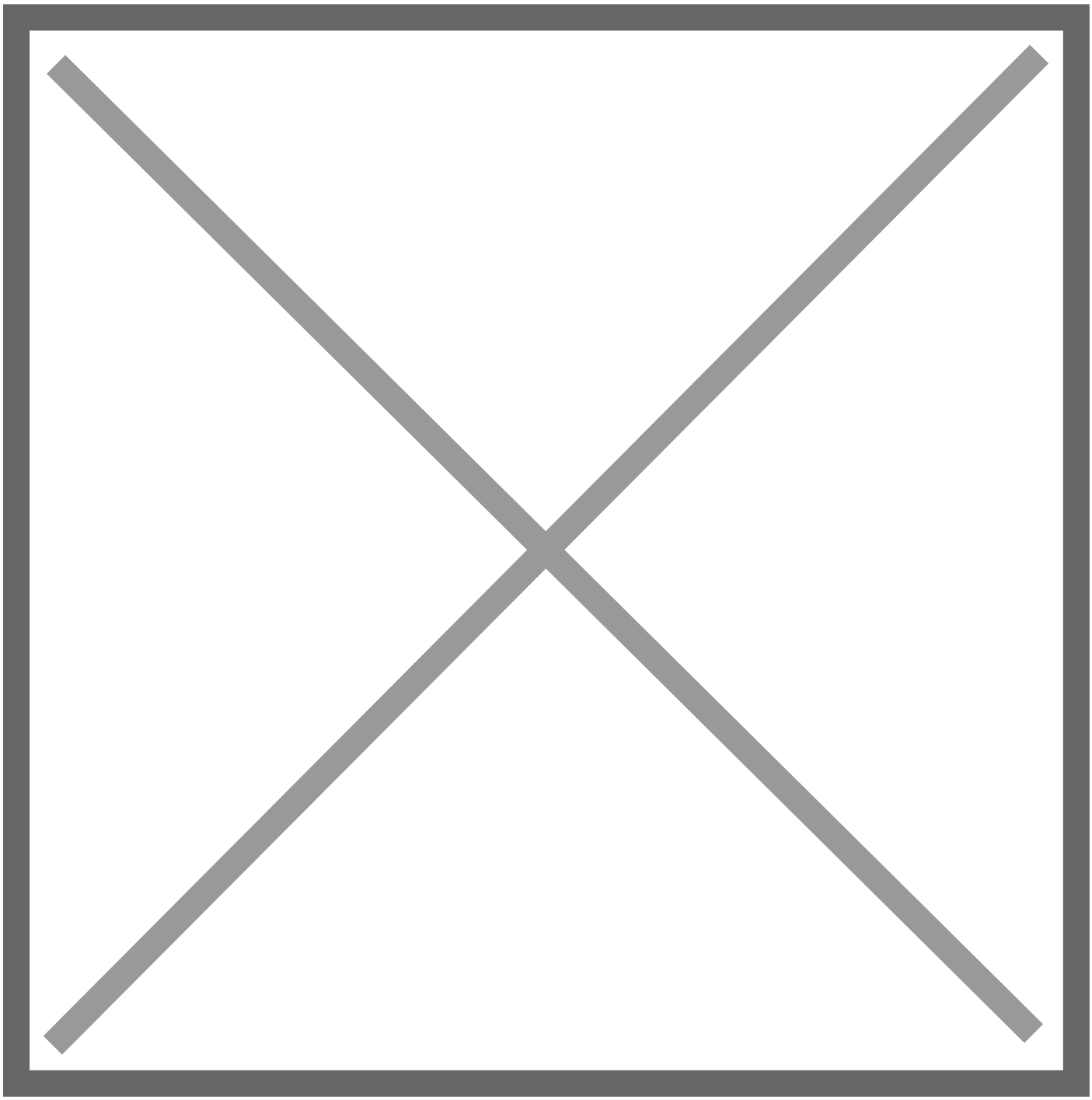
Software license sales through JSOL Corporation (Tokyo) and ESI Group (Paris) will come to an end during 2020, with the start of free access to THUMS.

THUMS Version 4: Models

Models include detailed human anatomy (skeletal structures, brains, internal organs, etc.) in a range of genders, ages, physiques, and postures.

Note: Versions 4, 5, and 6 will be made available for free.





History of THUMS