

The French Academy of Medicine grants the prestigious Charpak-Dubousset prize to research work for the prevention of bone breach in robotic surgery by the DSG® technology of SpineGuard

Paris (France) and Boulder (CO, USA), December 13th, 2022 – 06:00pm CET – SpineGuard (FR0011464452 – ALSGD), an innovative company that deploys its DSG® (Dynamic Surgical Guidance) sensing technology to secure and streamline the placement of bone implants, announced today that two researchers, the surgeon Elie Saghbiny and the engineer Jimmy Da Silva, were recognized for their collaborative work led jointly by the ISIR (Institute for Intelligent and Robotic Systems) lab of Sorbonne University and SpineGuard. The research focused on the use of the DSG technology of SpineGuard to automatically detect potentially dangerous bone breaches and to immediately stop the drilling when the spinal cord or other soft tissues are approached. DSG enabled bone conductivity data recorded at hospital Trousseau under the supervision of Pr. Vialle could also feed the robotic algorithms.

DSG is based on the local measurement of electrical conductivity of tissues in real time without X-ray imaging, with a sensor located at the tip of the drilling instrument. Its efficacy was proven by more than 90,000 surgeries across the globe and 20 scientific publications. SpineGuard entered a collaboration with ISIR in 2017 for the application of DSG to surgical robots and the enhancement of their safety, accuracy, and autonomy.

The Charpak-Dubousset prize was created in 2019 under the umbrella of the Fondation de France, inspired by the cooperation in the technology and medical field of Georges Charpak, Physics Nobel Prize winner, and Professor Jean Dubousset, former Chief of pediatric orthopedic surgery at Hospital Saint-Vincent de Paul (Paris, France) and pioneer of the surgical treatment of scoliosis. A clinical, university and industrial partnership allowed them to develop a very low dose numeric radiographic system and 3D reconstruction methods of the human body. The prize rewards a medical doctor and a researcher, each made laureate of the French National Academy of Medicine, whose joint research consists of a medical application with a fundamental science discovery, and more generally collaborative and innovative work.

Stéphane Bette, Co-founder and Deputy-CEO of SpineGuard, declared: *“This very high-level recognition is a great pride for the entire SpineGuard team and a new key milestone because it represents an additional validation by the scientific community of the pertinence and potential of our technology applied to robotic-assisted surgery. It naturally comes as a support in SpineGuard’s discussions with Industry looking at integrating DSG into robotic surgical assistance platforms.”*

Guillaume Morel, Professor at Sorbonne University and ISIR Director, added: *“After having rewarded seasoned and already globally recognized duos such as Mathias Fink and Jean-Michel Correias, the Academy decided this year to honor young and innovative researchers. This promising prize rewards a multidisciplinary and translational research. For three years, Elie Saghbiny has immersed in our robotic lab, where he became accustomed to our approaches and methods. Additionally, Jimmy Da Silva spent many hours in the operating room of Pr. Vialle at Trousseau Hospital in order to analyze each surgical gesture. This daily work, dialog at the interface of different disciplines paid-off today and we are delighted to share this success with Trousseau Hospital and SpineGuard, one of our strategic partners.”*



The algorithms used for the control of the robot and the breach detection are the property of SpineGuard, Sorbonne University, INSERM and CNRS. The verification work received funding from the European Union's Horizon 2020 research and innovation program, in the context of the FAROS project (Functional Accurate RObotic Surgery) under grant agreement N°101016985.



SpineGuard's Priorities

SpineGuard is focusing on the following priorities while investing selectively to remain close to breakeven:

1. Boost commercial activities with the launch of the DSG-Connect visual interface and the partnership with WishBone Medical
2. Deploy the DSG digital technology in the surgical robotic field
3. Develop a Smart Universal Drill (SUD) embedding the DSG artificial intelligence
4. Support ConfiDent with the design and scale-up of the DSG dental applications
5. Implement the agreement recently signed with Omnia Medical
6. Sign other strategic partnerships

About SpineGuard®

Founded in 2009 in France and the USA by Pierre Jérôme and Stéphane Bette, SpineGuard is an innovative company deploying its proprietary radiation-free real time sensing technology DSG® (Dynamic Surgical Guidance) to secure and streamline the placement of implants in the skeleton. SpineGuard designs, develops and markets medical devices that have been used in over 90,000 surgical procedures worldwide. Twenty studies published in peer-reviewed scientific journals have demonstrated the multiple benefits DSG® offers to patients, surgeons, surgical staff and hospitals. Building on these strong fundamentals and several strategic partnerships, SpineGuard has expanded the scope of its DSG® technology in innovative applications such as the « smart » pedicle screw, the DSG Connect visualization and registration interface, dental implantology and surgical robotics. DSG® was co-invented by Maurice Bourlion, Ph.D., Ciaran Bolger, M.D., Ph.D., and Alain Vanquaethem, Biomedical Engineer. SpineGuard has engaged in multiple ESG initiatives.

For further information, visit www.spineguard.com

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