

# DR. CARLA PUGH

Phonetic Spelling: [Car-luh] [Pew]



Carla Pugh, MD, PhD, FACS is the Thomas Krummel [Professor of Surgery](#) at Stanford University School of Medicine and Director of the [Technology Enabled Clinical Improvement \(T.E.C.I.\) Center](#). Her clinical area of expertise is Acute Care Surgery and her research involves the use of simulation, advanced engineering technologies, and artificial intelligence to develop new approaches for assessing and defining mastery in clinical procedural skills. Dr. Pugh is considered to be a leading, international expert on the use of sensors and motion tracking technologies for clinical performance measurement.

Dr. Pugh obtained her undergraduate degree in Neurobiology at U.C. Berkeley and her medical degree at Howard University School of Medicine. Upon completion of her surgical training at Howard University Hospital, she attended Stanford University to obtain her PhD in Education. Her graduate studies have given her a unique vision and the empirical skills necessary to forge a new and innovative path in using technology and metrics to bridge the gap between process and outcomes. Her goal is to forge a new path towards applied quality metrics in healthcare and to change the face of medical and surgical education through data analytics, data visualization and performance feedback.

Dr. Pugh holds multiple patents on the use of sensor and data acquisition technology to measure and characterize hands-on clinical skills. Currently, over two hundred medical and nursing schools are using one of her sensor-enabled training tools for their students and trainees. She is the Principal Investigator on eight active grants, including a National Institute of Health (NIH) R01 Grant, “Quantifying the Metrics of Surgical Mastery: An Exploration in Data Science,” and a Scoliosis Research Society (SRS) award, “Leveraging Embedded Haptic Sensor Technology for Force Vector Mapping in Orthoses for Adolescent Idiopathic Scoliosis.” Most recently, she was awarded a Wellcome LEAP SAVE (Surgery: Assess/Validate/Expand) contract for her proposal titled, “Advanced Quantification and Acquisition of Surgical Skills Using the Wearable Sensing System.” Throughout her career, she has been awarded over 50 grants garnering over \$30 million in funding from government agencies, trusts and foundations, and educational institutions.

Her work has received numerous awards from medical and engineering organizations, including the [Presidential Early Career Award for Scientists and Engineers](#) from President Barack Obama at the White House in 2011. In 2014, she was invited to give a [TEDMED talk](#) on the potential uses of technology to transform how we measure clinical skills in medicine. Dr. Pugh was inducted into the [American Institute for Medical and Biological Engineering](#) (April 2018), the [American College of Surgeons Academy of Master Surgeon Educators](#) (April 2019), as well as the [American Board of Surgery Council](#) (February 2020). She was elected a member of the [National Academy of Medicine](#) in 2021 for "pioneering sensor technology research that helped to define, characterize and inspire new and innovative performance metrics and data analysis strategies for the emerging field of digital health care."