



Lecturer

"Skill Assessment for Robotic Surgery (Language of Surgery)"

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Rising health and financial costs associated with iatrogenic errors have drawn increasing attention to the surgical dexterity of surgeons. With the advent of new technologies, such as robotic surgical systems and medical simulators, researchers now have the tools to analyze surgical motion with the goal of differentiating the quality of surgical motion in surgeons. In this presentation, we provide a clinical motivation for the importance of surgical skill evaluation.



We review the current methods of tracking surgical motion and the available data collection systems. We then survey current methods of surgical skill evaluation and how most approaches either fall into one of three methods; structured human grading, low-level analysis and high level-analysis of surgical motion. Finally, we state that an encompassing approach that promotes the benefits of current methods and borrows techniques from speech processing to formalize a language of surgery would allow automatic and objective surgical skill evaluation to move closer to reality.

Biography

Ms. Reiley is currently a graduate student in computer science at Johns Hopkins University advised by Gregory Hager. She is currently researching surgical skill evaluation and building statistical models to analyze human and robotic motions. She is a NSF Graduate Research Fellowship Program (GRFP) Fellow and has served on the IEEE Robotics and Automation Administrative Committee as student co-chair for 2008 and 2009. Ms. Reiley has a B.S. in Computer Engineering from Santa Clara University (2004) and a M.S. in Computer Science from Johns Hopkins University (2007). More information can be found at <http://www.cs.jhu.edu/~creiley/research.html>.