



**UNIVERSITY OF CENTRAL FLORIDA**  
CENTER FOR RESEARCH IN COMPUTER VISION

# Dr. Haydar Celik

National Institutes of Health

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“Magnetic Resonance Guided High Intensity Focused Ultrasound and Clinical Applications”

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## **ABSTRACT**

Magnetic resonance (MR)-guided high intensity focused ultrasound (HIFU) provides precise and controlled delivery of focused ultrasound energy inside a lesion using an external applicator, without the need for a scalpel or needle. In this combination of technologies, MR imaging provides anatomic, functional and thermometric guidance, which enable accurate treatment planning and real-time temperature control. Non-invasive and non-ionizing nature of MR-HIFU may reduce or eliminate treatment-associated stress, trauma and mutagenic effects that limit other imaging and therapy, especially in children. MR-HIFU has been evaluated in a number of adult and pediatric diseases, including benign and malignant tumors as well as neurological disorders, such as Parkinson’s disease.

In this talk, I will introduce current MR-HIFU technology and applications for adult and pediatric patient populations at the NIH and Children’s National Medical Center.

## **BIOGRAPHY**

Haydar Celik has been working on MR-guided novel devices and technologies. Dr. Celik is a scientist at the NIH (Bethesda, MD), assistant professor at George Washington University and Children’s National Medical Center (Washington, DC). Immediately after completing his PhD (Bilkent University, Ankara, Turkey, 2010) he joined Sunnybrook Research Institute (University of Toronto, Canada) as a postdoctoral fellow to lead a multidisciplinary team in a pre-clinical project to develop non-contrast enhanced MRI methods for characterization of radiofrequency ablation lesions and explain MR contrast mechanism of these lesions.