Communication and Marketing Department
Isebe loThungelwano neNtengiso
Kommunikasie en Bemarkingsdepartement

Private Bag X3, Rondebosch 7701, South Africa
Welgelegen House, Chapel Road Extension, Rosebank, Cape Town
Tel: +27 (0) 21 650 5427/5428/5674 Fax: +27 (0) 21 650 5628

www.uct.ac.za

31 August 2015

Using cheetah movements to develop search and rescue robot – UCT study

University of Cape Town PhD graduate Dr Amir Patel has always been interested in animals and robotics and has found a way to merge his fascination with both to create a robot which could eventually be used in search and rescue operations.

His thesis: *Understanding the motions of the Cheetah tail using robotics* looks at the way in which a cheetah uses its tail to stabilise itself while travelling at high speeds. After studying cheetah movements for countless hours Dr Patel was able to understand exactly how the tail works and then proceeded with the mammoth task of writing a code to emulate that.

Video observations also revealed a conical swing of the cheetah tail which was found to impart a continuous roll torque on the body. Furthermore, investigations into the cheetah tail biomechanics revealed that the aerodynamic effects were also significant in cheetah stability during rapid manoeuvres. Dr Patel and his team then modified a highspeed radio-controlled car based on what they had learnt, and tested it. What they found was that the car with the tail was able to turn and change direction while travelling at high speeds without falling over unlike the car without a tail. (Please see video 1). A further revision on the robot tail also enabled more aggressive braking and accelerations (Please see video 2).

Dr Patel graduated with a PhD in Electrical Engineering in 2015 under the supervision of Emeritus Professor Martin Braae.

END

Issued by: UCT Communication and Marketing Department

Aamirah Sonday
Media Liaison Assistant
Communication and Marketing Department
University of Cape Town
Rondebosch
Tel: (021) 650 4976 Fax: (021) 650 3780
Cell: 073 650 7743
Email: aamirah.sonday@uct.ac.za
Website: www.uct.ac.za