

“As a child I wanted to invent things. I took apart my toys and any broken appliance left unattended.”

– Asheer Bachoo

COMPUTER SCIENTIST

CHARACTERISTICS

To be a successful image processing researcher you must enjoy solving complicated problems, have a keen interest in mathematics and science and be able to learn from your mistakes.

RELATED CAREERS

Software engineer, computer programmer, systems engineer.



Bachoo demonstrates an optronic surveillance system to clients.

A SHARPER IMAGE

An optronic sensor system combines photography, videography, engineering, image processing and a healthy dose of design innovation.

MOST OPTRONICS ENGINEERS get to work on steady systems, installed securely on Mother Earth with an easy view of a target scene. This is not the case for Asheer Bachoo, who works on surveillance operations in safety and security, where deployment is often on a moving ship or aircraft and under imperfect conditions. Imagine the surveillance footage from a system installed on a frigate patrolling the Western Cape's shoreline at night during a storm.

Working as an image processing researcher at the CSIR, Bachoo's task is to mathematically improve images received from various surveillance systems deployed in difficult conditions. This could be adverse weather or a cluttered environment that obscures the target under surveillance.

"For every scenario, I rely on research to understand how to remedy a specific problem, and run options past the rest of our team," Bachoo explains. He will then work through the mathematics, implement the solution in software and test it, using the camera or video data captured in real-world conditions to see if it will do the trick. It doesn't always work the first time. As Bachoo says: "You must be able to take failure on the chin and use it as a learning opportunity. I learn from my mistakes all the time."

Bachoo's work makes him part of ensuring the safety and security of South Africa. Being able to receive a clear and stable image from a surveillance system enables authorities to distinguish, for instance, whether an approaching target is a whale or a small vessel carrying illegal immigrants or smugglers.

Photography, video observation and image processing are capabilities not only used in defence but also in fields such as robotics, biosciences, materials and manufacturing, and the built environment.

According to Bachoo, to be a happy and successful image processing researcher, one has to thrive on the thrill of solving complicated problems.

He elaborates: "To be able to do the work that I do, I have to draw on my passion for learning and solving problems. As a child I wanted to invent things. I took apart my toys and any broken appliance left unattended. I was curious about everything and fell in love with mathematics when the teachers at my school gave me complicated mathematical problems to solve."

Bachoo says that working at the CSIR means working with brilliant local colleagues as well as international specialists. "Plus I get paid to be creative!" he says. "My level of success is determined by my enthusiasm and motivation."

Bachoo studied computer science and is currently working on his doctoral degree in engineering.

— Lèsa van Rooyen



Enquiries:
Asheer Bachoo
abachoo@csir.co.za



WHAT ASHEER BACHOO STUDIED

He studied BSc, BSc (Hons) and obtained an MSc in computer science at the University of KwaZulu-Natal. He is currently working towards a PhD in engineering at the University of Cape Town.



WHERE TO STUDY

Bachoo studied at the Universities of KwaZulu-Natal and Cape Town, but most universities in South Africa offer both undergraduate and postgraduate degree courses in computer science.