



iOmniscient supports Sydney to go VIVID



Each year Sydney breaks into colour for the Vivid Festival of Lights. Each year thousands of citizens and tourists wander around the city to bask in the city's luminosity and energy.

Of course it is the task of the Local Councils and the Police to make sure that they understand where the crowds have gathered so that they can ensure a safe environment for them.

This year iOmniscient's Crowd Management system is helping this process. It will enable management to understand where the crowds are growing the fastest and where they might need more tactical support from Police and other agencies.

iOmniscient's software can be rented for short periods and can operate in the cloud, making it easy for authorities to implement state of the art technologies to assist them during such events without making a huge upfront investment.

Interview with Dr. Rustom Kanga, CEO

iOmniNews: Dr Kanga, you appear to have two classes of product for most of your capabilities. Why do you need more than one type of Object Detection or Counting or Face Recognition?

Dr Rustom: If you asked for transportation, I could sell you a bicycle or an airplane ticket. If you are going to base your decision on price I would offer you the bicycle. And if my bicycle is well priced I would win the deal. However, this assumes that you as a customer don't know or don't care about what you get.

If on the other hand you know that you need to go from Sydney to Los Angeles and you have 20 kg of luggage to take with you and you want to get there in 14 hours or less - then you would definitely need the airplane ticket. And I would win if I provided you with the most cost effective ticket for this journey.

Many users, who are new to intelligent systems, have not understood the difference between simple and sophisticated video analytics. For such customers we offer them our very simple products which can compete against and beat other simple low end products. These products will meet their stated requirements and they will usually make their decision based on these. We offer bicycles to those who need bicycles and to those who have not figured out whether they need bicycles or an airplane. For the sophisticated user, however, who understands the significant differences that can exist between different levels of technology we offer the more sophisticated products.

As an example, if an airport asks for Abandoned Luggage Detection we would offer our low end Object Detection (with an IQ of 60). This would compete with and beat similar products from our competitors - but it will only work in empty scenes as will the products from our competitors. On the other hand if the airport asks for a system to detect Abandoned Luggage in a CROWDED SCENE then this requires our patented Non Motion Detection technology. No one else can do this.

The User will get what he asks for.

iOmniNews: But airports are always crowded. Why would they ever buy something that only works in an empty scene?

Dr Rustom: Many users have not realized that there are different levels of sophistication in every technology. If they do not know the difference then they will buy the simple product because it is less expensive and learn from their experience.

iOmniNews: How will they ever learn if they only buy the cheap product? Won't they just have a bad experience and complain that the technology is not yet ready for commercial deployment?

Dr Rustom: If a significant user decides to buy from us we always explain the two options. If they decide to buy the cheaper option and we know they need the more sophisticated one, then we will often provide them with a free short term licence of the higher level product. We feel our more sophisticated products are like good chocolate - once they taste it they will not be able to stop.

iOmniNews: Don't these customers usually have experienced consultants to advise them?

Dr Rustom: If a customer is to use a consultant, they should ensure that they have had experience at implementing the more sophisticated technologies. There are a small number of good consultants who have this experience.

iOmniNews: One major competitor for Face Recognition systems says they have been ranked as the world's number 1 Face Recognition system. How does your system compare?

Dr Rustom: Indeed they have, but only for HIGHLY CONTROLLED ENVIRONMENTS. We specialize in Face Recognition in Crowded, Uncontrolled, Real world Environments and in that we are Number 1.

Elsewhere in this newsletter there is a chart showing a comparison between that particular competitor which you mentioned and us. This comparison was performed using 2 megapixel cameras which were supposed to recognize people in a corridor that was 10m wide from a distance of 20m. You can see the difference.

iOmniNews: How important is it to have the right camera views? And the right cameras?

Dr Rustom: Critical. While systems are designed to cope with some variations in camera views the highest accuracies are always achieved by placing the camera such that it enables the algorithm to work with the minimum effort.

With respect to cameras, we work with virtually all cameras. But the cameras are the eyes. Different cameras have different characteristics. For instance, for reading number plates at very high speeds one needs a high shutter speed and the ability to cope with the glare of headlights. For counting and speeding applications one needs a very consistent frame rate and so on. If the cameras cannot see well, the software which acts as the brain of the system may receive a distorted view of the world.

Comparison of systems for Face Recognition in a Crowd

Assessment for a 2mp camera attempting to recognize people in a 10m wide corridor.

Parameter	Other Company	iOmniscient
Distance at which one can recognize	3-5 meters	20 meters
Breadth of view	1.5 meters	10 meters
Number of people recognized simultaneously	1 or 2	Up to 20
Hardware requirement	I7 computer with extra embedded GPU processor	Standard I7 computer
Optimal Resolution between the eyes	100 pixels	22 pixels
Minimum resolution between the eyes	20 pixels	12 pixels
Accuracy with multiple images in uncontrolled environment	70%	70%
Cameras needed to cover 10m wide area	6 to 10	1
Storage requirement for 90 days	2 terabytes	0.40 terabytes
Resolution required to see 20m distance	8 megapixel camera	2 megapixel camera
Accuracy with single image in uncontrolled environment	40%. They therefore say they can do single image match	40%. We feel we should not offer a system with this accuracy
Total cost (including hardware) to see 20 meters	\$20,000	\$6,000
Ability to integrate other sophisticated analytics on the same camera	Not possible	Internationally patented ability to perform behaviour analytics, License Plate Recognition, etc. on the same cameras simultaneously.
Automated Response	Not available	Internationally patented ability to automatically find the nearest first responder/ policeman when there is an alert and pass the information video and location to him.

Winner - Global Security Challenge for Crowded Places