iOmniscient
High iQ Surveillance

See Through the Crowd

Newsletter
September 2013

The Evolving Intelligence of Analytics Systems

In a recent article in the NY Times (Facial Scanning Is Making Gains In Surveillance - 21st August 2013), eminent journalist Charlie Savage has pointed out that the US government has spent millions of dollars on Facial Recognition technology for Crowded Scenes with disappointing results. However, this was an article about the experiences of a US government department with one US supplier of a single technology. It did not attempt to comment on the fact that governments in other parts of the world are already using iOmniscient's Face Recognition in a Crowd technology very effectively in real world situations in combination with many other iOmniscient technologies.

This is not an unusual case. The Australian government recently funded a massive research project to evolve a traffic management capability – only to discover that the much more advanced iOmniscient technology had already deployed for several years.

These cases are not surprising as universities and government bodies do not have the visibility on the research done by private corporations.

The technology is moving rapidly in several new directions. Beyond security the technology is used for safety and the increase in operational efficiency. For the first decade, we were product centric. We have become use case / application centric. We felt we should share how it has evolved and where it has reached.

Legacy of the Past Decade

When we first started out, we differentiated ourselves by focusing on algorithms for coping with crowded scenes. A significant part of our patent portfolio is focused on the problems of crowded and complex scenes. No one else can find an abandoned object in a crowd. And our obsession with addressing the problems of crowded scenes has extended to counting, crowd management and finally to Face Recognition in a Crowd.

And we developed **NAMS** – an artificial intelligence based capability for reducing false alarms which was the most significant problem faced by CCTV systems then and now.

The behavior analytics evolved to address more complex behaviours such as counting in a crowd, queue management and the detection of slips and falls and smoke and fire.

The most significant advance was the development of recognition technologies for License Plates and for recognizing people in crowded uncontrolled environments.

Today is Different

Of course, all these algorithms keep improving as part of their natural evolution. But this is still a very product oriented approach. Even though we can cope with crowded, complex and realistic scenes providing end to end video analytics, from the point when an event is detected to recognizing the culprit, we have realized that the customer needs more than that.

But the next phase is with us. We have already moved beyond video based analytics to also using other senses such as sound and smell. Each of these technologies is useful in its own right.

The first breakthrough was to go beyond individual analytics capabilities to being able to address the requirements of particular Use Cases. So the focus moved from selling individual products to solving particular problems as described in a Use Case.

An example will explain this. If a person just falls down he could have slipped. If at the same time we hear a rising sound of people shouting and a crowd gathers, it is likely to be a fight. If a gunshot is heard, we can surmise that the person may have been shot.

Face recognition can then be activated automatically to attempt to recognize those that are present at the event. This ability to combine the information from complex sequences of events, both from real-time video and forensic footage, to draw a conclusion is an important advance.

EEnhancing this focus on how our customers use the technology rather than just on the technology has led us to put together 30 Industry Packs focused on 30 different industries.

These packs use the standard technology building blocks that the company has already put in place to generate solutions for specific problems faced by these different industries. The advantage of this user focused approach has allowed us to work in environments with multiple stakeholders such as in Smart City deployments where multiple government agencies have to work co-operatively.

Automated Response

Analytics systems are not designed in isolation. Someone has to be able to use the information to achieve a result. This response using information generated by various sensors has been a manual process in the past. iOmniscient's patented **ASAP™** ssystem (Automated Surveillance Action Platform) is the first sophisticated Automated Response system. Simple automated response systems have existed in the past. A number plate is read and it opens a boom gate – that is an Automated Response system. But it is a simple system. ASAP™ is a much more sophisticated system where the system understands the problem, determines who best can solve it and sends the information to that person to address. There is little or no human intervention.

Consider a traffic accident. After determining the nature of the event, ASAP can advise the nearest police cars of the nature of the event and guide them to it.

Of course this requires that the core technology has to work well so that it continues to be a fundamental focus for the company.

The ASAP system does not have to replace legacy VMS systems that the user may have. It can work quite easily with such recording and display systems.

Enhancing ROI

Throughout our development efforts, we have realized all technologies can have a cost. Our design goal was to build technologies that would enhance efficiencies, increase productivity and reduce costs for the user. The first question we ask when launching development on any new technology is whether it will reduce the user's costs. Will it increase their efficiency to the point where they can afford the technology? Can it increase the revenues they generate for themselves? And are these benefits tangible.

Our patented **IQ-Hawk** already does this. When we bid on tenders, those integrators who have built their solutions around iQ Hawk have been able to design a solution that would come in at half the price of using traditional technologies and it generates better results. We are talking about the overall price of the project and not just the analytics component. – So this is very significant for tenders where price is often an important consideration.

As we move forward we should expect all future technologies to generate similar results. Certainly you will continue to see this in all of iOmniscient's new offerings.

Long Planning Horizon

We have a team of brain-stormers who envision not where the technology will be in 2 or 3 years' time but in a decade from now and this forms the basis for our ongoing research. There are many new capabilities in the pipeline and you will continue to see the technology evolve and improve rapidly in the coming years.

University of San Francisco selects iOmniscient's Face Recognition

University of San Francisco (USF) founded in 1855, is listed as a Tier One National University in the 2013 U.S. News & World Report and has been named to the President's Higher Education Community Service Honor Roll by the Corporation for National and Community Service for the seventh straight year. As of September 7, 2012 (Census Date), USF enrolled 10,017 students. Apart from this there are approximately 2500 faculty members and employees.

USF provides on-campus housing through its various Residence Halls. These residence halls are frequently visited by large number of residents and non-residents. Hence it is extremely important to efficiently manage the entry of visitors to these Residence Halls.

After extensive trials, the University of San Francisco has decided to use iOmniscient's Face Recognition system inside certain Residence Halls. The system will recognize and keep track of residents and non-residents who enter the building. Designed to improve occupancy tracking, the system was selected because it can handle crowded environments and allows the attendant to easily identify visitors for proper check in.

Jason Rossi, USF Director of One Card & Campus Security Systems, said "Residence Halls are very high traffic environments which make it difficult for traditional access control technologies to verify every person who is entering. By using the facial recognition system we now know who has entered the building, and have improved our ability to identify visitors who need to check in with the attendant."

iOmniscient is honored to provide its Face Recognition system to University of San Francisco to enhance the security and safety of its residence halls.

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Visit us at ASIS, Chicago (24th-26th September, 2013): **Booth No. 2290** and see **Live Demo** of our **Facial Tracking System.**

To set up a meeting, please write to meeting@iomniscient.com

iOmniscient establishes new R&D Center in Singapore

iOmniscient has recently established a new R&D Center based in Singapore. This Center will join iOmniscient's other three Centers (in Sydney, Toronto and Chennai) and work jointly with them on building the integrated solutions that iOmniscient offers.

The focus in Singapore will be on Smart City applications. This is appropriate in view of iOmniscient's involvement in implementing the Singapore Safe City Test bed. The first solution from this R&D Center will be available in the December timeframe and are scheduled to be implemented in Singapore itself.

Winner - Global Security Challenge for Crowded Places