

# ISRAEL HIGH-TECH & INVESTMENT REPORT

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## A Bubble or an Optical Illusion

A stock market bubble is a type of economic bubble taking place in stock markets, in which a wave of public enthusiasm, evolving into herd behavior, causes an exaggerated bull market. When such a bubble takes place, market prices rise dramatically, making the listed stocks significantly overvalued. Generally, stock market bubbles are followed by stock market crashes.

The dot.com boom of the late 1990s is one example. The biotech boom in the 1980s is another. Still other examples of stock market bubbles include Japanese stocks in the late-1980s, Nifty 50 stocks in the early 1970s, and Taiwanese stocks in 1987. A stock market bubble may set the stage for a later stock market crash, continuing our example, the Stock Market Crash of 2000.

Since our accurate prediction of the "bursting of the dot.com bubble" in 2000 we have reviewed the various indications which signal the formation of the bubble.

Charles MacKay, in 1841 in his classic Extraordinary Popular Delusions and The Madness of Crowds wrote, "Sober nations have all at once become desperate gamblers, and risked almost their existence upon the turn of a piece of paper. Men, it has been well said, think in herds; it will be seen that they go mad in herds, while they only recover their senses slowly, and one by one," he wrote.

Many may have never heard of the speculative tulip bulb craze that gripped seventeenth-century Holland. At the peak of the mania, a single tulip bulb sold for the equivalent of \$150,000 - \$1,500,000, depending on which historical description one reads.

Tulip prices soon plunged to less than the present equivalent of a dollar each. Imagine having bought a tulip for \$76,000, only to discover six weeks later that it was now worth less than one dollar. Commerce in Holland suffered a severe shock, and did not recover for many years.

Substituting "dot.com" for "tulip bulb" their similarity becomes apparent. The dot.com companies at first attracted individuals drawn by the prospect of web communities, Internet commerce and the promise of instant communications to millions at the click of a computer mouse. Consulting research companies churned out glowing reports and stock market analysts recommendations for shares of companies who were going public daily but had no prospects of turning their activities into a going business. Investment companies

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**A Bubble or an Optical Illusion**  
**Competition for US Smart Passport Contract**  
**Assuring a Safer Pregnancy**  
**Juniper Networks, Inc. to Acquire Kagoor Networks**  
**Eye Surgery Innovation to Help Glaucoma Sufferer**  
**Insightec Assigns its Underwriters**  
**IMI and IAI to develop Precision Long-Range Rocket**  
**Visual Defence to Float on London's AIM**  
**Promise of Stem Cells to Restore Youth**  
**Rosetta Genomics Raises \$4m.**  
**NeuroSonix Raises \$1.4m.**  
**Technion Researchers Develop Method**  
**for Quick Processing of Biometric Data**  
**Suspect Detection Systems hits Jackpot**  
**Israeli Companies Raised NIS 50b. in 2004**  
**Orbotech Expanding into Medical Imaging**  
**Private Frms Expand Share of Computer Market**  
**Revolutionary' Armour Protection System**  
**Novel Organic Semiconductors**  
**Record Quarter for Life Sciences**  
**CSFB Offers to float Israel's InterCure in Tokyo**  
**Telit Raises \$44m. in London IPO**

were instructed to drop caution and invest and invest. The competition for shares of the young companies was insatiable.

The first indication that we are entering into a period that could lead to a bubble, is related to the large number of initial public offerings already placed, their quality and the new ones that are in the pipeline. Prospects are that it will be not only a “bumper” but a record year for IPOs.

One of the more curious items that caught our attention was the up-and-coming “pizza IPO”. A Luxembourg firm controlled by an Israeli company, that owns the Domino Pizza franchise in Switzerland, Lichtenstein and Luxembourg, indicated that it wants to float stock on London’s Alternative Investment Market. While there is nothing objectionable about a pizza IPO, Israelis well recall Domino Pizza, that expired and declared bankruptcy after a few years of operation in Israel. Have the owners of the Domino Pizza franchise learned something in Israel? It is quite unlikely because the owners are not expert restaurateurs, but diamond merchants.



Bruce James, Public Printer of the United States and CEO of the GPO. The new technology makes available additional information about the passport holder, all embedded on a microchip.

The three-phase project involves GPO, Department of State Bureau of Consular Affairs and The National Institute of Standards and Technology (NIST). GPO will manufacture test passports using chip solutions provided by the four companies. NIST will then test the electronic passports for their ability to meet durability, security, and electronic requirements. Contracts have been signed with the four candidate companies and substantial fees have been paid. “We are looking at different types of antennas and different substrates,” he said. “The chip is only part of it. We are looking at chip durability and chip reliability, and the ability to integrate the products into passport covers.” The four companies and the value of the contracts awarded for testing them in the first phase of the project are:

- Axalto, Inc. 2 awards of \$107,770 each BearingPoint/ SuperCom, Inc. \$82,823
- Infineon Technologies, North America \$108,317

“Why London?, a reporter asked. “We considered others stock exchanges but ultimately chose London, partly because of easier terms there for foreign companies,” the entrepreneurs explained. Should Domino Pizza trade at a premium or a “pop” as it is known, it will be a sure sign that values are being forsaken.

Should the “exuberant enthusiasm” for new issues mushroom over the next year to 18 months we will know that we will be experiencing a bubble.

**Competition for US Smart Passport Contract**

The United States Government Printing Office has awarded contracts to four companies to provide computer chips for testing a new electronic U.S. passport.

“The GPO designs and manufactures security and intelligence documents for the Federal government and takes the responsibility very seriously. The new technology that will eventually be incorporated into electronic U.S. passports will enhance the security of millions of Americans travelling around the world,” said

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Once test results are completed and a final vendor is selected, the Department of State plans to begin issuing electronic passports to U.S. Government employees. The first electronic passports are expected to be issued to the general public in the second quarter of 2005 with full deployment at all Department of State passport agencies in late 2005. State eventually may choose one or two suppliers for the job, Moss said.

The department now produces about 7 million passports annually. When State rolls out its biometric passport capability, it plans to charge applicants a \$10 fee to pay for the biometric feature.

The contractor or contractors that provide the covers, which the Government Printing Office will combine with the passports' inside pages, would be likely to get a portion of the resulting revenues, amounting to \$35 million or more annually.

SuperCom, (SPCBF.OB) one of the candidates for the contract, said in a statement that State's biometric passport project is the largest and most advanced program in the world. "The scope of the project, based on the request for proposals is estimated at 50 million passports over five years," SuperCom said.

SuperCom's solution provides a smart inlay, which can be included in the front or back cover, in the middle page or adjoining the personalization page. SuperCom has installed a significant number of passport personalization systems around the world. Tailored to meet the customer's specific requirements, the SuperCom system will capture the fingerprints of each visa applicant and store the images on a chip integrated in each visa, enabling automatic and positive identification of the person each time the visa is used. The system features an advanced and decentralized design that makes it fast and cost-effective to install while increasing its flexibility.

SuperCom, founded in 1988, started trading in Europe on the Euronext Brussels Stock Exchange in 1999, and on Nasdaq Over-The-Counter Bulletin Board in 2004.

Israel has also decided to make the move to biometric passports and shortly will issue a tender for the project. Britain is also moving ahead and plans to be biometric by 2006.

## Assuring a Safer Pregnancy

Israel has a well earned reputation in the field of diagnostics, an area of activity that relies on ingenuity. However, the distance from the laboratory to the market place is not the identical for all companies.

After seven years of incubation in the academic environment, in 2001 Diagnostic Technologies made a strategic decision to employ Dr. Hamutal Meiri to run the company. Dr. Meiri had earned a PhD. in Neurophysiology to which she added an MBA. Her academic work was topflight and her name appears on 30 peer reviewed scientific papers. She has also received numerous professional prizes. There was a question mark however, since she had no commercial experience. However, that strategic decision has paid handsome dividends. She contributed to the company's Intellectual Property (IP) and her name appears among the patent holders. However, her main contribution was to convert the IP into a marketable product which is currently entering European markets.

Diagnostic Technologies (DTL) fills a market vacuum by providing a novel diagnostic tool to aid in the assessment of high risk and problem pregnancies.

It has developed novel devices for monitoring pregnancy-at-risk based on emerging genomics and proteomic research. Combined with home monitoring, DTL's diagnostics can be readily packaged into a treatment plan for pregnant women who are at risk for pregnancy complications. DTL discovered the gene for placenta protein 13 (PP13). Using a simple blood test, DTL developed specific antibodies to detect PP13 in the pregnant mother's serum, a new test to diagnose mothers at risk for preeclampsia (PE), high blood pressure, intrauterine growth retardation (IUGR) and pre-term delivery (PTD). Preeclampsia is a condition that kills hundreds of mothers-to-be each year in the United States as well as many thousands throughout the world. The condition leads to 15 per cent of all premature births, researchers say.

Pre-eclampsia occurs in as many as eight per cent of U.S. pregnancies, often striking healthy women without warning, and can lead to seizures, strokes and



kidney damage. The cause is unknown, and there is no reliable way in use today to predict who will develop it. The only known cure is to deliver the baby, often prematurely. In

cloning the PP13 gene, DTL found it to be a placental specific enzyme (phospholipase A) produced during pregnancy in the placenta and released into the maternal blood stream. PP-13 release during the normal course of pregnancy is low as the placenta differentiates in the 1st and 2nd trimester, followed by a steep increase occurring at the third trimester, when the placenta triples its size. Blood tests of patients with PE and IUGR correlate with PP-13 deficiency in the 1st trimester and its steep slope of early increase between the first and the second trimester. The protein level and its slope of change are used as the parameters incorporated into the risk algorithm to detect at least 90% of all cases with 70-100% higher risk as compared to normal at 2-3% false positive rate.

No reliable blood serum biomarker or testing kit exists to screen for pregnancy complications. Existing imaging methods (Doppler ultrasound) provide confirmatory results for PP-13 as the serum marker. There are no interventional methods capable of detecting these complications. Other blood or urine testing detects the pregnancy disorders at a stage when clinical symptoms are already apparent and requires delivering the baby since the mother and baby are already at appreciable risk.

“The technology works to a degree of confidence that it has the ability to change the way OBGYN and general practitioners think about delivering medical services to pregnant mothers in the 1st, 2nd and 3rd trimesters of gestation,” says Dr. Meiri.

DTL has distribution agreements in a couple of European countries with local distributors. Recently the company obtained letters of intent for international distribution by two of the leading international corporate concerns. An American company requested to distribute the product to specialized fertility clinics in the US. The company is confident that after the FDA approval, based on studies carried on in the NIH prenatal lab, it will obtain reimbursement approval for its kit the by the US Medicare and Medicaid.

The company's current financing round, aimed to raise \$5.0m. is to accelerate its market entry by completing clinical trials and to fund marketing costs.

“In 2007 we are hoping to reach sales of \$4.0 M. and then look forward to exponential growth. Our goal is to reach a 10% market share by 2010,” says Giora Meyuhas, the company's chairman, a chemical engineer, who had served as Israel's Economic Minister to North America.

## Juniper Networks, Inc. to Acquire Kagoor Networks

Juniper Networks, Inc. (Nasdaq:JNPR ) announced it has signed a definitive agreement to acquire Kagoor Networks in a transaction valued at \$67.5 million.

This move is an additional step in Juniper Networks' strategy to bring secure and assured networking to customers worldwide through rich traffic processing. The combination of Juniper Networks' best-in-class secure and assured networking solutions and Kagoor's session border control (SBC) technology, delivers a powerful solution for network operators looking to cost-effectively deploy quality Voice over Internet Protocol (VoIP) and other rich media services. Session border control technology is also one of the key building blocks required for infranets., a public infrastructure.

Kagoor's three founders - Opher Kahane, Itzik Parnafes, Shai Mohaban - and its 100 employees hold 20% of the company, and are expected to receive some \$14 million.

Kagoor has raised \$39 million in four investment rounds. Its strategic investors include Intel and Siemens, as well as venture capital funds Concord, TDF and Accel, along with well-known private investors.

Headquartered in San Mateo, California, with a research and development (R&D) center in Herzliya, Israel, Kagoor brings to Juniper Networks a highly skilled engineering team with deep voice expertise. In addition, the company's VoiceFlow SBC products are installed in over 100 carriers worldwide, most of which also use Juniper Networks' platforms. Juniper Networks will leverage the acquisition to establish an Israeli R&D center which will tap into the strong engineering talent pool in Israel.

“With Kagoor, Juniper gains best-in-class SBC technology and an acknowledged center of excellence in voice,” commented Kittu Kolluri, general manager, Security Products Group, Juniper Networks.

The acquisition is expected to close in the second quarter of 2005 subject to certain customary closing conditions. Kagoor generated less than \$5m. of revenues in 2004.

## Eye Surgery Innovation to Help Glaucoma Sufferer

Israeli start-up Optonol announced that a “Journal of Glaucoma” study has called its Ex-PRESS mini glaucoma shunt “simpler and more predictable” than

the standard procedure known as trabeculectomy.

The FDA-cleared shunt was found to be “safe and effective” when it was implanted in 24 eyes of 23 patients with severe open angle glaucoma--the most common form of glaucoma, affecting some three million Americans.

It is a fact that, 16 of the 24 eyes (66%) had previously failed the trabeculectomy procedure for treating glaucoma. The remaining eight (33%) were deemed “high risk for failure” and therefore contraindicated for a trabeculectomy procedure. Nevertheless, the Ex-PRESS “significantly reduced” intraocular pressure (IOP) in all patients, on average by 50%. Increased IOP is a result of glaucoma.

“The search for the perfect glaucoma device has continued for nearly a century,” said the clinical study’s lead investigator, Elie Dahan, MD, Ophth, Department of Ophthalmology, University of the Witwatersrand, Johannesburg, South Africa.

“This mini shunt procedure is relatively simple and can be performed in less than half the time of a trabeculectomy. Equally important, the Ex-PRESS device is biocompatible, and its structure ensures minimal tissue trauma. In addition, no removal of scleral tissue and good aqueous flow control (limited by the 50-micron device lumen) suggest that the Ex-PRESS procedure is less complicated and more predictable than the gold standard, trabeculectomy.”

Glaucoma is a disease usually characterized by an increase in pressure within the eye. This may, in time, result in damage to the optic nerve, with loss of peripheral or side vision, and ultimately blindness. The higher the pressure within the eye, the greater the chance of damage to the optic nerve. Approximately 10 million Americans have elevated eye pressure, which places them at risk for the onset of glaucoma. Eighty thousand Americans are already blind from the disease. African-Americans have a five-fold greater risk of developing glaucoma.

Optonol is a privately held medical technology company founded by a group of experienced clinicians, engineers and entrepreneurs. The company’s initial area of focus is the development of innovative devices for ophthalmologic applications. Its first product in this field is the patented Ex-PRESS mini glaucoma shunt , a microscopic-sized implant that significantly reduces

intraocular pressure. Optonol’s U.S. headquarters are located in Kansas City, Missouri. The company has facilities in Neve-Ilan, Israel, and has operations in Zug, Switzerland.

### **Insightec Assigns its Underwriters**

Insightec, one of Israel’s hottest companies plans to seek a listing on Nasdaq. Insightec and has chosen Merrill Lynch and Morgan Stanley as its underwriters. The issue is planned to reach the market in 2005 at an estimated valuation of \$500m. Insightec has won acclaim and awards for its novel surgical systems, that combine magnetic resonance technology with ultrasound to noninvasively treat tumors inside the body.

Elbit Medical Imaging (Nasdaq:EMITF) controls it with a 52% holding, and General electric owns 20%.

Insightec is a young company. It was founded in 1999 and has received \$84 million in investments to date. InSightec developed ExAblate 2000, a focused ultrasound ablation device that can be integrated with a GE 1.5T.

Its first commercial development was the ExBlade, launched in 2000, which used focused ultrasound waves to scorch tumors inside the body, without breaking the skin. The device was appended to MRI – magnetic resonance imaging – machines made by General Electric.

Its award-winning technology was a revolution in tumor treatment, which until then had been based on invasive surgical extraction. Today its systems operate at 12 hospitals around the world, including the Sheba hospital at Tel Hashomer, Israel.

The United States Food and Drug Administration has approved an InSightec ultrasound device, ExAblate, to treat uterine fibroids. These are clumps of tissue that can cause miscarriages, painful menstruation and related problems in women, explained InSightec. The system uses ultrasound waves to break up the clumps and can provide an alternative to the removal of a uterus, or hysterectomy. But the FDA cautioned that the ExAblate 2000 System is not intended for women who want to become pregnant in the future.

About 80 percent of women suffer from uterine

fibroids at some point in life, according to the National Institutes of Health. Symptoms include pain, bleeding and uterine swelling, accompanied by a heightened need to urinate. But many women have no symptoms. Up to 25% will eventually require a hysterectomy. The ExAblate proffers a non-invasive alternative to many. Sometimes fibroids are treated with hormone therapy, but in that case the growths tend to recur, InSightec explains.

The ExAblate uses magnetic resonance imaging to pinpoint the non-cancerous tumors. Heat from carefully guided ultrasound waves then selectively kills the fibroid tissue, which is flushed from the body naturally. The company says its treatment is practically painless, and obviates the need for hospitalization, which sharply reduces healthcare costs. Patients lost an average of 1.2 working days compared with 19 in the case of women who underwent hysterectomy.

GE Healthcare, a unit of General Electric Co., said it was collaborating with InSightec to deliver the ExAblate system, which works with GE's Signa MR system. InSightec says the FDA approval followed trials on 109 women in seven medical centers around the world. Significant improvement was reported in 71% of cases, it said.

InSightec president and chief operating officer Dr. Jacob Vortman said his company is investigating possible use of the device to treat breast, liver, bone and brain cancers. "Today's approval ... underscores the importance of imaging technologies not only as diagnostic tools, but also as a therapeutic modality," Vortman explained.

Recently, InSightec completed a \$21 million financing round from its existing shareholders. For the purpose of the investment the company was valued at \$100 million.

### **IMI and IAI to develop Precision Long-Range Rocket**

The managements of Israel Aircraft Industries (IAI) and Israel Military Industries (IMI) recently signed an agreement to jointly develop, manufacture, and market long-range precision rockets.

Called "Extra" (extended range artillery), the system is being developed by IMI Givon Advanced Systems Division and IAI MLM Division. The artillery rockets will have a range of 150 kilometers, making them one

of the longest range artillery rockets in the world with high precision.

The rockets will be equipped with a variety of warheads for destroying structures and armored vehicles. They will be launched from artillery rocket launchers in use with the IDF and other armies.

IMI president and CEO Dr. Ehud Ganani said the first firing trials would probably be held early next year. "The Extra rockets will change the precision fire power of the IDF and our export customers."

IAI president and CEO Moshe Keret said the range, the precision, and the short reloading capabilities fit in well with the IDF's new combat doctrine.

### **Visual Defence to Float on London's AIM**

Visual Defence, a provider of integrated software and hardware solutions for digital audio-visual security systems over broadband, IP and wireless networks, has announced its intention to launch an IPO on the Alternative Investment Market (AIM) of the London Stock Exchange (LSE).

KBC Peel Hunt Ltd is acting as nominated adviser and broker to Visual Defence.

Visual Defence is a result of a merger between Emblaze (LSE: BLZ), a subsidiary of Emblaze Defence, and Canada's Girit/AVLogic. Both companies are video security specialists for enterprises, as well as government and homeland security projects.

The merged company, renamed Visual Defence, has won multi-million dollar key tenders in North America, European and in other international airports, the Israel Defense Forces (IDF) and the US Department of Homeland Security for the management and provision of secured video surveillance over wireless and fixed IP networks.

Visual Defence provides solutions that enable digital audio-visual (AV) data to be captured from a variety of sources, such as fixed or mobile cameras, microphones, infra-red sensors, access controls and burglar alarms and delivered to local or remote locations where it can be managed and monitored. The company's solutions are primarily targeted at government establishments, the military, mass transport centres such as airports, seaports, underground trains and large commercial

enterprises. A strength of the company's systems is that they integrate with legacy analog equipment.

The company employs over 70 employees. Visual Defence is headquartered in Toronto, Canada with R&D, sales and marketing operations, in both Canada and Israel.

The global homeland security market, dominated by the US, is currently worth some \$42 billion and the entire security market is worth about \$120 billion.

### **Promise of Stem Cells to Restore Youth**

Prof. Yosef Itzkowitz is one of the few people in the world who is partner to the patent for creating embryonic stem cells. Embryonic stem cells are derived from a fertilized egg after six days; their aggregate size is approximately one-tenth of a millimeter and they contain some 50 cells surrounded by an outer layer. In a regular pregnancy, an embryo develops from the cells, and the outer layer turns into the placenta.

In the lab, development stops at this stage and the cells are used for research purposes.

What makes the stem cells special is that all the other cells of the body develop from them.

Researchers are entranced by deciphering the process of differentiation into specific cells of heart, blood, liver or nerves. By understanding how this happens, for instance in the heart, it would be possible to develop a reservoir of heart cells that could wait on a shelf for transplanting into a cardiac patient, to correct muscle defects or replace heart transplants.

The research is based on introducing genes into embryonic cells that encourage insulin production.

Another direction of applied research being worked on in his lab is preparing cells for producing blood vessels, including heart cells, which can be transplanted.

"For the first time ever, pulsating muscle cells that were created in a lab, were created here - by Michal Amit, who works with me in my lab," he says. They were part of a team that worked with Prof. James Thompson at the University of Wisconsin in Madison. "Michal Amit was the one who succeeded in producing the first rows of embryonic stem cells," he notes.

The collaboration with Wisconsin enabled Itzkowitz to set up the first such lab outside the U.S. The money comes from U.S. federal funding.

The big revolution will come when stem cells can be used to stop the aging process.

"Recently something amazing has been proven,"

Itzkowitz says. "Research carried out at Stanford University in California proved that the embryonic stem cells of an elderly mouse can be made younger. The scientists took an old mouse and a young mouse and joined their blood systems.

They found that the exposure caused the stem cells of the elderly mouse to be renewed, a process known as rejuvenation.

Stem-cell generated blood vessels could have some important clinical uses. In heart bypass operations, such blood vessels could substitute for those that now have to be transplanted from other parts of a patient's body. In addition, experiments have shown that the cells, injected into a mouse, spontaneously form networks of small blood vessels, so they could improve circulation to organs that are blood-deprived.

"The search for substances that will cause our stem cells to be rejuvenated could be one of the big revolutions of our times," he says.

### **Rosetta Genomics Raises \$4m.**

Israeli start-up Rosetta Genomics recently completed a \$4 million financing round. It included some of the best known investors in the field of biotechnology.

CEO Dr. Isaac Bentwich, a trained medical doctor and entrepreneur, founded Rosetta Genomics, his second company, in 2000. His first company, Pegasus Medical Ltd., was sold to HBOC (now McKesson Corporation (NYSE: MCK) for \$15 million in 1995. Pegasus Medical dealt in computerization of medical information, and developed a computerized medical file. Bentwich was joined by his father, Zvi, one of the world's leading immunologists and AIDS researchers. Prof. Zvi Bentwich is Rosetta Genomics' chief scientist, and chairs the company's scientific advisory board.

Rosetta Genomics has developed an innovative discipline for discovering microRNA genes, until recently considered an unimportant part of the genome. The company aims at achieving a substantial market share in microRNA-based products, and expects to make its first revenue in 2006. The current financing round will help expand Rosetta Genomics stock of patents, and pay for clinical trials.

### **NeuroSonix Raises \$1.4m.**

Start-up NeuroSonix Ltd. announced that it had completed the raising of \$1.4 million in its first financing round.

NeuroSonix, a medical devices company, was founded in 2000 by CEO Dr. Nathan Sela at the Incentive Technological Incubator in Ariel, Israel. The company is developing non-invasive technology for protecting the brain from embolisms during open-heart surgery and other cardiologic procedures and angiographies. The company estimates the potential market for its first product, designed for open-heart surgery, at \$1 billion a year. 1.5 million open-heart surgeries are carried out in the Western world every year.

Sela said today, "The prevalence of brain damage from open-heart surgery is very high and unacceptable, especially for such a frequent procedure. An average of 3% of patients suffer from strokes, and many more suffer from some degree of cognitive impairment. The economic cost of these problems is cautiously estimated at \$2.5-4 billion a year in the US alone."

NeuroSonix has six employees, It successfully completed animal trials last year, and will begin clinical trials on humans in Europe this summer.

Ofer Brothers Hi-Tech, Peregrine Ventures, and Yozma led the financing round. Other US and Israeli funds also participating, including TopNotch Capital, an Israeli investment bank that specializes in the life sciences, and which managed the financing round.

### **Technion Researchers Develop Method for Quick Processing of Biometric Data**

Israel Police expressed an interest in a new method that will speed up identification of human biometric signatures such as DNA or fingerprints

Technion researchers have succeeded in developing a new method for quick processing of biometric data that will speed up by tens of percentages identification of human biometric signatures such as DNA or fingerprints. The researchers developed the method in cooperation with the Forensics Department of the Israel Police, which is expressing great interest in the method. Legislation for setting up a database of the DNA of criminals is currently in the process of enactment in the Knesset. Upon completion of this legislation and operation of the database, the police will be required to deal with an ever-increasing amount of information.

The method was developed by master's student

Solomon Kunin, under the guidance of Prof. Yitzhak Gat from the Technion Faculty of Bio-Medical Engineering. "We are talking about a data base plus a search algorithm, applicable to DNA," the researchers explain. "Police all over the world are dealing with a similar problem: given a DNA sample, they need to identify to whom it belongs. In the future, we will reach the point where all developed nations will have biometric information on their entire populations. It is important for police departments that answers to test be available as quickly as possible. Today, they operate using a simple method of comparing data one to another, which takes a long time. The solution we have found is to build a smart database. We use a multidimensional tree whose root is found in all humans, and out of which there are splits. For example, we organized the data as a smart tree and then adapted the search algorithm that uses these splits in order to reduce the search area. If the algorithm does not find the answer in a specific area, then it immediately moves to another area, thus reducing the number of comparisons and significantly speeding up (as much as 100 times) the search time. It also enables quick identification using only a partial profile."

The researchers also used parallel processing in order to speed up the process even more. This enables more than one computer to carry out the search in parallel.

This innovative method also can be used for voice identification or picture ID, for quality control in industry using imaging, and even for identifying handprints at airports.

### **Suspect Detection Systems hits Jackpot**

Ramat Gan-based startup Suspect Detection Systems has won a plum contract to help secure the Atlantic City Airport, by means of detecting when people are unreasonably nervous.

The United States Transportation Security Administration gave it the contract to install a system identifying unarmed terrorists and the Atlantic City, N.J., airport will install an experimental version this year of this product. . SDS beat out a host of American competitors, including Boeing, to secure the contract, valued at hundreds of thousands of dollars.

The system has won approvals from the Israeli security establishment. People being checked place their hand on the device and are presented with an array of

questions. A special detector measures physiological responses. Questions come in a variety of culturally sensitive versions.

The primary fear of a suicide bomber is to be caught, according to Yeshayahu Horowitz, former head of the police's polygraph division and current chief scientist at SDS. The system is based on the belief that the terrorist's fear will be reflected in measurable psycho-physiological parameters.

"Foreigners flying El Al are currently subjected to 10-20 minutes of questioning," says SDS CEO Shabtai Shoal. "The line for U.S. immigration authorities is liable to take 90 minutes. Our system is a type of kiosk making an initial assessment within three minutes. If the system identifies a suspect, he can be sent to a personal agent to complete the investigation."

Shoal, a former division manager at Comverse Technology, founded SDS along with Horowitz and former deputy Mossad chief Amiram Levin. The founders have sunk hundreds of thousands of shekels of their own funds into the company and have secured a grant from the chief scientist of the Ministry of Trade and Industry.

The company, which currently employs 12 people, plans to raise funds from the Defense Ministry's Armaments Research and Development Administration.

### Israeli Companies Raised NIS 50b. in 2004

2004, was a banner year for corporate Israel. The business sector raised a NIS 50 billion (\$11.6b.). The Bank of Israel research department reported that the sum is nearly three times the amount Israeli firms raised in 2003,

A large part of the total was raised by means of stock and bond issues. The banks were key lenders. During 2004, Israeli companies raised NIS 23.3 billion in bond issues, compared with NIS 11.8 billion in 2003. The entry of foreign investors and hedge funds into the Israeli arena also facilitated the flow of money to corporate Israel. Via offerings of shares and convertible instruments, companies raised NIS 6.6



billion last year, compared with NIS 3.8 billion the year before.

During the year, Israeli companies repaid the banks NIS 1.4 billion, compared with NIS 3.4 billion in 2003. In parallel, they borrowed NIS 1.2 billion from foreign banks, having repaid them NIS 2.7 billion in 2003, in net terms. (NIS 4.30 = \$1.00)

### Orbotech Expanding into Medical Imaging

Orbotech (Nasdaq:ORBK) is buying Rehovot-based Imarad Imaging Systems for \$33 million.

Orbotech will pay \$7-\$8 million in cash on the spot. Future payments will be based on sales milestones.

Yavne-based Orbotech develops automatic testing systems for the printed circuit and flat screen sector. Imarad develops and manufactures sensors used in medical imaging.

Orbotech will establish a subsidiary, Orbotech Medical Solutions, for its first venture into the medical devices field.

Imarad's client list includes GE Medical, which has invested in the company in the past, as well as Philips Medical, Toshiba and Mitsubishi.

Imarad has developed technology for growing cadmium zinc telluride (CZT) crystals which serve as advances sensors in medical imaging cameras. CZT sensors substantially minimize system size and provide better resolution.

Imarad sensors are used in gamma detectors to test cardiopulmonary capacity and narrowing of arteries. A device based on Imarad technology costs \$100,000-\$120,000, substantially less than the \$350,000-\$550,000 cost of traditional devices. The CZT technology uses will be expanded in the future to include CT and X-ray systems.

Imarad was founded in 1999 by CEO Shimon Klier, Uri El-Hanany and Alex Tsigelman, who invested \$2 million in the company. GE Medical put up \$1.75 million. The company had planned a 2000 IPO at a company value of \$40-\$50 million, but its Nasdaq dreams fell through.

Venture capital research company IVC says the only

Israeli fund to invest in the company is the Millenium Materials Technology Fund, which has put in \$2 million of the \$10 million invested in the company to date.

Millenium's senior partner Nir Belzer said, "I believe it is possible to establish a single entity in Israel that will become a leader in medical imaging."

### **Private Firms Expand Share of Computer Market**

The Israeli computer market was worth \$2.93 billion in 2004, which was also the first year to record significant growth in this market after three years of decline. In 2003 the local market was valued at \$2.46 billion, down 8.5 percent compared with 2002, according to a recent report issued by Meta Group,

Jimmy Schwarzkopf, Meta's research director predicts that this year will witness further significant growth - of 12.5 percent - that the market will top the \$3 billion mark for the first time since 2000 and will amount to some \$3.3 billion.

The government, which accounted for the largest share of the pie in 2003 and 2004, is expected to reduce its computer expenses, while the sectors that will increase their computer expenditures considerably - according to Meta Group - are the banking sector and financial organizations (including insurance companies); telecom companies, which spent substantially more on computers in 2004, infrastructure and transportation companies, and the small business sector that operates from homes.

IBM Israel is the largest computer company in Israel, with HP right behind it and Ness Technologies in third place. Next in line are Matrix, Bynet and Team. IBM is also the leading company in the computer sales market in Israel - both in the desktop computer market and in the laptop market - and is followed by HP and Dell. In the other hardware market - Intel-based servers - HP is the market leader, followed by IBM, Dell and Sun Microsystems. In the Unix-based server category, HP is the leader again, having surpassed Sun, which was in first place last year but has dropped to second place this year. IBM is in third place.

The Israeli information storage market is led by CME Israel, followed by HP Israel, Network Appliance Israel, IBM, Hitachi Data Systems and Sun.

Cisco Israel is the front-runner in communications equipment market, which is ranked for the first time this year, followed by Nortel, Motorola, Juniper Networks,

InterSystems and Avaya. The communication network integration market is led by the Bynet Group, followed by Netcom Systems, Telrad and the Mittwoch Group.

The added value services market, which includes special integration and outsourcing projects is headed up by Ness, followed by IBM, Matrix HP, Malam and Telrad. In the outsourcing market itself (which includes the outsourcing of pay slips), Ness is No. 1, followed by Malam, the Automation Company, EDS and IBM. In 2004 Ness pulled ahead at the expense of EDS and IBM, whose rankings slipped compared to last year.

The consulting market in 2004 was led by IBM, followed by Accenture and Matrix. This is quite a switch from 2003, when Matrix was in first place, followed by IBM and Netcom. In 2004 Netcom dropped to fourth place while IBM moved into first.

Matrix, which owns John Bryce Training currently leads the information technology training market, followed by Sela College, Ness' training division, High-Tech College and Emet Group.

### **Revolutionary' Armour Protection System**

Jane Defense has reported that the Israel Defence Force (IDF) Ground Forces Command and the Israeli Ministry of Defence (MoD) have unveiled what they describe as "the most advanced armour protection system in the world".

Trophy Active Protection System (APS) is the result of a 10-year collaborative development programme between Rafael Armament Development Authority and Israel Aircraft Industries/Elta, led by the Directorate of Research and Development in the MoD and funded by the MoD. Rafael is prime contractor for the programme.

The Trophy system can detect, classify, track and destroy all types of advanced anti-armour threats, including anti-tank guided missiles (ATGMs) and rockets at "a significant distance" away from a targeted platform - in some cases destroying the threat without detonation, which leaves no residual effect on the platform,

### **Novel Organic Semiconductors**

An Israeli research team has manufactured new organic semiconductors using proteins designed from scratch in the lab and linking them together in precise chains to create electronic-grade material. The new semiconductors, called electronic peptides, could lead to lighter, cheaper and more flexible electronic devices

within the next two years, the researchers say.

The electronic peptides created by Professor Nir Tessler and colleagues at the Technion-Israel Institute of Technology could be used in full color, foldable LED displays with a sharper resolution than today's computer screens, and large, flexible solar cells that spread flat and roll up like a blanket. The peptides could also be used in sensor devices that detect tiny amounts of disease molecules in the body or toxins in the environment.

Researchers can construct the electronic peptides one building block at a time, which gives them precise control over the semiconductor's properties, such as its ability to produce a particular color on a flat screen monitor. The block-by-block approach allows the peptide researcher "to prepare the material in the same way that electrical engineers at Intel or IBM prepare a circuit," Tessler says. "We want 100 percent control that will lead to close to zero errors."

To build the electronic peptides, the Technion researchers began by imitating nature. In human cells and the rest of the biological world, peptides are created by linking together amino acids, the basic building blocks of proteins. In the lab, Tessler and others used an automatic peptide synthesizer – a computerized machine – to link together artificial combinations of amino acids and create new peptides with semiconductor properties.

"Choosing the right building blocks will give you roughly the properties you are after, and choosing the right sequence [for the blocks] will give you exactly what you need," Tessler explains.

"The nice thing about peptides is that the complexity of attaching one building block to any other is the same complexity you find in LEGO bricks," Tessler adds. "You use only one method to connect them all and you know very well how to connect them, with no need to invent a new chemical process every time you want a different sequence."

The precision manufacturing process creates "electronic grade" material, which means that the material will not lose its response to electrical signals over time like some other organic semiconductors, according to Tessler.

Tessler says the peptides could be integrated into

existing electronic devices, and are not intended as a replacement for the silicon-based circuitry in today's computers. The most popular application for semiconductors like the peptides is in flat screen displays, since these semiconductors use less energy than the materials in current computer monitors. Laptop computers with peptide-powered flat screen displays, for instance, would need to have their batteries recharged less frequently.

Professors Tessler, of the Technion Faculty of Electrical Engineering, Yoav Eichen of the Faculty of Chemistry and Gadi Schuster of the Faculty of Biology have received a patent on the electronic peptides, and a new Israeli company called Peptronics Ltd. will develop the technology for commercial purposes.

### Record Quarter for Life Sciences

Life sciences investment in Israel reached an all-time record of \$130 million in the fourth quarter of 2004, according to Kesselman and Kesselman - PricewaterhouseCoopers Israel's MoneyTree Survey, published recently. The survey reported that the amount raised was 106% more than the \$63 million raised in the preceding quarter, and 225% more than

the \$40 million raised in the fourth quarter of 2003. Life sciences investment totalled a record \$286 million in 2004 as a whole.

Kesselman & Kesselman audit partner in charge of life sciences Claudio Yarza, expects investment in Israel's life sciences industry to total \$200-250 million in 2005, less than in 2004. He added that an increasing interest on the part of foreign investors in the local industry, capital raising by Israeli venture capital funds, capital market financing rounds, and merger

and acquisition deals could change the picture.

### CSFB Offers to float Israel's InterCure in Tokyo

Credit Suisse First Boston's Japan arm wants of being the first to bring an Israeli company on the Tokyo stock exchange. CSFB Japan is looking at the Israeli medical-technology company InterCure, which has



developed technology to help relieve cardiovascular and pulmonary conditions.

InterCure CEO Erez Gavish says the investment bank believes the company can raise tens of millions of dollars at a company value of about \$100 million, if it leaps now. If InterCure waits six months, its valuation could soar to a quarter-billion dollars.

InterCure, based in Fort Lee, New Jersey and Lod, Israel is alternatively considering floating its stock in London.

The company's technology is based on the concept of relieving hypertension, and cardiovascular and pulmonary difficulties through breathing exercises, without drugs. The United States Food and Drug Administration has approved its flagship product, RESPeRATE, for sale in the U.S.

### Telit raises \$44m in London IPO

Telit Communications has completed its IPO on the Alternative Investment Market (AIM) of the London Stock Exchange.

The company raised \$44 million at a company value (after the money) of \$115 million. Its shares were listed for trading this morning under the symbol TCM.L at an opening price of 1.4 pounds sterling.

Telit Communications CEO Oozi Cats said, "We are delighted that the flotation of the company has been completed successfully and it is pleasing to see such high levels of institutional demand for the shares. We now look forward to using the funds raised from the flotation to increase our sales and marketing to take Telit to its next stage of growth."

Telit Communications was 95% owned by Polar Investments (TASE:PLR). As a result of the IPO, Polar Investments' stake has fallen to 51%, and it will record a pre-tax capital gain of some NIS 75 million.

Telit specializes in the design and sale of mobile telecommunications hardware. It operates in worldwide markets, mainly from Trieste and Tel Aviv.

The business has two operating divisions. The first of

these is the design, development, manufacture and sale of cellular wireless terminals for application in the machine-to-machine (m2m) communication market. The second is a branded cellular terminal enhanced value-added reseller business, which customizes and distributes cellular handsets manufactured by third parties. These handsets are sold using the Telit brand name.

The Telit group carries out its activities through Dai Telecom (Israel), which directly and indirectly owns Dai Telecom SpA of Italy, which it acquired in 2002. The group's annual revenue for 2004 was \$97 million, compared with \$32 million in 2003, and \$31.1 million in 2002. Operating loss for 2004 was \$2.3 million, compared with \$13.9 million in 2003. The group had an operating profit of \$850,000 in 2002. Shareholders equity is currently \$13.2 million, and cash reserves stand at \$750,000.

Telit plans to build on its already established cellular phones markets in Italy, Israel, Mexico, Holland, Germany, Slovenia and Portugal as well as targeting new markets to achieve further growth.



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