Wracking your brain to remember how you labelled a computer file or digital photograph could be a thing of the past, thanks to Thereitis, a new visualisation tool devised by a researcher at Flinders University.

Thereitis is now also the name of a “spin-off“ company by Flinders Partners, the University’s commercialisation arm. The company has just been awarded $250,000 of Commonwealth funding by Commercialisation Australia, and has received the Citrix “Best Early Stage Company” Award at Tech 23, an annual national competition for ICT companies.

According to its creator, Mr Theodor Wyeld, Thereitis leverages the human tendency to memorise things visually, reducing the time it takes to find documents and images on a computer or the web by as much as 80 per cent. It can be used to sort web-based data such as eBay listings, book sales or other image-rich catalogues.

The software creates a navigable 3D-array of images or documents, and based on how the individual user organises things, the tool adjusts to fit their search style.

Director of Digital Media Studies at Flinders, Mr Wyeld said the approach was akin to spreading out a shoebox of photos on a table: “Just show me everything, and I’ll know it when I see it.”

Recently returned from chairing and presenting a keynote address at the International Information Visualisation Conference in London, Mr Wyeld said: “It’s all about the user. That’s what makes it so much fun to use. It’s so intuitive you don’t need any training to be able to use it.”

Mr Wyeld said the initial idea for the product came from his work in archives 10 years ago, where numerical indexing systems showed themselves to be clumsy and inefficient.

continued on page 2...
Leading researcher gains new role

The outstanding research record of Professor Graeme Young in the treatment and prevention of bowel cancer has resulted in his appointment to a new position at Flinders as Professor in Global GI (Gastro-intestinal) Health Research.

Since his appointment as foundation Professor of Gastroenterology at Flinders in 1997, Professor Young has headed a large research initiative at the Flinders Centre for Innovation in Cancer and more recently has contributed to the development of the Flinders Centre for Cancer Prevention and Control.

He has several teams of research personnel covering population screening, clinical research, epithelial biology and molecular biology which have attracted major funding from Australian and overseas bodies.

Professor Young's research in the area of faecal occult blood test-based screening of colorectal cancer and his championing of the cause of testing was instrumental in establishing the national screening program for bowel cancer in Australia, which commenced in 2007. His work has achieved significant improvements in early detection of the disease as well as increasing participation rates of testing by nearly 70 per cent.

He was made South Australian of the Year in 2007 in recognition of his efforts.

The Head of the Faculty of Health Sciences, Professor Michael Kidd, said the new position will allow Professor Young to continue his own internationally respected research, while also taking a mentoring role with other teams of researchers.

"Professor Young's work has had a profound effect on our understanding of bowel cancer, particularly in improvements in its prevention and detection, and through his role as Professor in Global GI Health, Flinders will continue to enjoy the benefits of his knowledge and expertise," Professor Kidd said.

Since 1993, Professor Young has also been involved in research to reduce the high levels of infant mortality in developing countries due to dehydration resulting from bacterial and viral infections. In 2008, Professor Young and international colleagues were awarded $2 million by the Bill and Melinda Gates Foundation for their initial work on a food-based treatment that aims to increase the effectiveness of oral rehydration using a simple starch additive.

The international collaborative team, which includes WHO, is in the final step of negotiating several multimillion dollar grants to fund the collection of clinical-trials evidence for the new therapy.

Despite his numerous personal honours, Professor Young is emphatic that collaboration is the most effective approach in research: "Achieving something big comes from building teams that are able to put the building blocks together in the right way," he said.

Charles Gent

Thereitis uses a unique 3D compression algorithm that sorts objects according to how the user wants to see them organised. It can be "pointed at" any folder on a hard drive, database or website to create a rotating cube of floating images or icons that can then be sifted and selected.

Mr Wyeld said tens of thousands of images or icons can be viewed at once, and searches can be narrowed or ordered using any of the parameters available, such as date, name, colour, price, or other property.

"The user can visually swim around in the collection on their screen until they find what they are looking for, with similar objects clustered in zones," he said.

"We pick up familiar objects in our peripheral vision long before we even recognise them, so searching large collections makes a lot of sense, because this is how we do things anyway.

"No longer is there a need to describe what one is looking for in words. A simple point and click returns thousands of possible results, not in a list but as a collection of icons or images.

"And almost before you know it, there it is!"

Charles Gent

Cover: Mr Theodor Wyeld in front of a Thereitis image array.
Doing the numbers on the environment

Mathematical modelling — whether of ecosystems or of financial markets — can never be perfect, and those who rely on models need to be aware of their limitations as well as their power, according to Flinders University’s newly appointed Professor of Mathematics, Jerzy Filar.

Professor Filar, who has an international reputation for his work on models that are inspired by the environmental impacts of development, has come to Flinders as one of a series of strategic appointments of eminent academics.

“Regulation that interferes with the way that people do business is usually not welcome, but whether it’s water, air or soil, if we degrade the biosphere too much by our human development activities, in the end our lives will become much worse,” he said.

Professor Filar's work uses systems of equations to capture an understanding of how development affects an ecosystem.

“We are doing this in increasingly sophisticated ways,” he said.

Professor Filar, who edits the international Journal of Environmental Modelling and Assessment, said the mismatch in time-scales between human processes and those of the biosphere poses one fundamental problem.

“Most human development processes are related to products that have a life of a few years, but the response time of a critical natural process, such as the deep layer of the ocean, for instance, is about 360 years, or many human generations.

“And, ultimately, it is the slow variables that have the most profound effect.”

Professor Filar likens the effect to eating daily snacks to boost energy, which over a period of years creates the risk of major health threats from accumulated cholesterol.

“But the good news is that you can often control the slow variables by controlling the average of the fast variables,” he said.

Professor Filar said there are inherent dangers in applying a mathematical model without any understanding of its basis: “It’s like driving a car without knowing what’s under the bonnet.”

The reliance of stock markets on financial mathematics is a case in point.

“If users like stockbrokers and financial analysts don't understand the assumptions underlying mathematical models, then very adverse phenomena can result,” Professor Filar said.

“The model is only good if it’s applied within its proper domain.”

Better understanding of such issues is part of his argument for an urgent need to improve mathematics education in Australia.

“With fewer university courses requiring mathematics as a prerequisite, fewer schools are offering specialist mathematics at Year 11 and 12 and a downward spiral is developing,” he said.

“And this is despite the fact that mathematics has penetrated more aspects of society than ever before — medicine, weather prediction and mineral exploration all use advanced mathematics. It is somewhat of a paradox: supply is decreasing while demand is increasing.”

Charles Gent

Making it all add up for maths teachers

When Flinders mathematician Professor Raja Huilgol decided to offer a refresher topic in mathematics for primary school teachers, he thought he might get 50 or 80 takers; in the event, enrolments exceeded 200.

Professor Huilgol is offering his students in the Bachelor of Arts (Primary Education) a mixture of history, technique and extension.

“When people would argue that primary maths teachers only have to understand maths up to Year 8 level, but I want them to be able to give those students who are interested at least some idea of what mathematics is about at secondary level,” he said.

Professor Huilgol said that mathematics is the only universal language in the world, and therefore requires symbols of its own so that everyone can understand it.

“You mustn’t think of it as a burden but as something to enjoy.”

To be successful, he said, practitioners need to become familiar and stay in touch with the discipline.

“Once you become familiar with and memorise how to solve, say, quadratic equations, it will take you two minutes — if you have to go back and work it out from scratch it will take you half an hour,” he said.

While it can be useful to employ local examples to illustrate theory — Professor Huilgol uses Adelaide’s grid layout to teach Cartesian coordinates, and football results as a source of statistical problems — he warns that students (and their teachers) still need to learn the abstractions.

“You don’t want these problems to become so culturally specific that you lose your sense of broad logic — and you do need to learn the important formulae so that you always know, for instance, how to calculate the volume of a sphere.”

Charles Gent
Flinders University was all colour and movement when 9,000 plus prospective students visited the campus to see more than 50 individual courses “strut their stuff” during the 2011 Open Days on August 19 and 20.

While activities and information centred on the Student Hub in the Sports Centre, detailed course information was on offer in locations all round the University, with sessions in the Science Innovation Learning Centre proving especially popular. Fresh FM broadcast live from the Hub on both days, supplementing a variety of audio-visual presentations, posters and live demonstrations.

A new feature this year was the Flinders Live Stage in the refectory, featuring performances by staff and students publicising courses.

A highlight was the Obama v Osama debate, which saw international law pitted against pragmatic politics.

Numerous visitors from regional South Australia took advantage of the meet-and-greet barbecues hosted by student residents of University Hall and other on-campus accommodation.

The University also took its message to North Terrace on Sunday August 21, with staff and students dispensing course information from a marquee on the SA Museum lawns.

The Head of Admissions, Mr Peter Torjul, said the Open Days are the primary opportunity for students to visit Flinders University and to plan their future University pathways.

“The best part of the Open Days was the feedback from our visitors; they commented on the campus (many saying it is the most beautiful in Adelaide), the breadth of study opportunities available and the friendly and welcoming staff. Overall, it was a great event,” Mr Torjul said.

Anyone who missed Open Day and wants to find out more about studying at Flinders can contact the Admissions/Prospective Students Office on 8201 3074.

Further undergraduate course information sessions will be held in September and details can be found at http://www.flinders.edu.au/events
Flinders academics hit a high note

Quiet achievements by two Flinders University scientists have been thrown into high relief with the presentation of the Unsung Heroes of Science Awards for 2011. Medical scientist Dr Tim Chataway was awarded the Unsung Hero of Science Award, and chemistry academic Associate Professor Stewart Walker received the Unsung Hero of Science Communication Award from the State Minister for Science and Information Economy, Mr Jay Weatherill, at the Adelaide launch of National Science Week in early August.

Ms Tatiana Anesbury of the Australian Science and Maths School, which is based at Flinders, shared the Unsung Hero of Science Communication Award with Associate Professor Walker.

The awards are presented annually by National Science Week (SA) and Australian Science Communicators (SA) with the aim of recognising those who have not yet received significant recognition for their contribution to science or science communication.

Cited as “the champion of protein analysis”, Dr Chataway was instrumental in establishing the Flinders Proteomics Facility, which is available to scientists from other research organisations including universities, hospitals and the CSIRO. As a Sir Mark Oliphant Research Fellow, his work was funded for three years through donations made to the FMC Foundation.

During his career, Dr Chataway has made a major contribution to a huge range of projects, from ophthalmology to cancer research; from neuroscience to plant diseases. His current research is focused on clumps of protein found in the brains of sufferers of Parkinson’s disease.

Flinders Deputy Vice-Chancellor (Research), Professor David Day, congratulated Dr Chataway on his award.

“This recognition shows that Flinders research is diverse, important and collaborative,” Professor Day said.

Associate Professor Walker, an academic in the School of Chemical and Physical Sciences and Director of the Centre of Expertise in Energetic Materials, was cited for his extensive experience in developing and delivering innovative science education and communication programs across a range of educational institutions from primary to tertiary, as well as for the general public.

He is perhaps best known in his role as the organiser of the Chemical Murder Mystery, a highly successful annual event at Flinders that has introduced thousands of school science students to the techniques of forensic chemistry.

New lab builds the profile of DNA

A laboratory dedicated to forensic DNA research opened at Flinders this month will increase South Australia’s capacity in research and postgraduate education in forensic science.

The new laboratory is fitted with special “clean rooms” that incorporate filtered air systems, allowing DNA to be handled and analysed without the risk of contamination with equipment similar to that of an operational forensic laboratory.

The Forensic DNA Laboratory was opened by the CEO of the SA Department of Justice, Mr Jerome McGuire.

Forensic biologist and the inaugural Chair in Forensic DNA, Professor Adrian Linacre, said that the facility would permit valuable research on DNA to be carried out by both Flinders and Forensic Science SA. He said that while similar laboratories are operated by Forensic Sciences SA in central Adelaide, they are dedicated to operational casework.

“This laboratory provides Forensic SA with a research environment that will enable their staff to concentrate on research projects without the distractions of casework. They also access supervisors and other academic expertise,” Professor Linacre said.

Professor Hilton Kobus, a former head of Forensic Sciences SA, who is now based at Flinders, said that the laboratory represented another significant step in the Flinders-State Government forensic science partnership.

“We’re almost unique in Australia in the closeness of the collaboration, and we’re coming together in bigger and more visible ways,” Professor Kobus said.

Funding to refurbish the laboratory in the Physical Sciences building comes from the Burgoyne Fund, which was established with income derived from the invention at Flinders by Emeritus Professor Leigh Burgoyne of FTA paper, now a world-wide industry standard for storing DNA samples.
As far as conversation starters go, telling someone that you have bowled to cricket legends Sir Viv Richards, Allan Border, Steve Waugh and Imran Khan is sure to get a reaction. For Mr Simon Blight, newly-appointed Donor Relations Manager in Flinders Marketing and Communications Office, recounting his years as a Test Match “nets bowler” is just one way of making a connection with people.

“I learnt very quickly in my career that marketing and business development isn’t so much about selling – it’s about building relationships and seeking commonalities,” Mr Blight said.

“Sharing a love of cricket is one way of doing that. My passion for bushwalking, including Tasmania’s famous Overland Track that I completed in January and the sense of achievement that comes from it, is another,” he said.

Mr Blight comes to Flinders with over five years donor development experience in the not-for-profit sector, primarily with Guide Dogs SA/NT and Cancer Council SA.

He moved into the charity sector after an extended stint in key business development management roles with Channel Nine Adelaide, the RAA and SGIC/MBF Health.

“The reason I enjoy working in the not-for-profit sector is that it’s not about company profits and commission: it is about being able to make a difference,” he said.

“The knowledge that a vision-impaired client who had been confined to their home for many years is able to go into the city with a guide dog provided by the generosity of a donor with whom you’ve established empathy is incredibly rewarding.”

In recent years, Mr Blight has seen a shift in the nature of philanthropy.

“There are so many charities that seem to be doing the same thing. Now, there seems to be much more of a connection between people and the benefits that their education has provided,” he said.

“Part of my job is to explain how Flinders graduates, friends and organisations can make a difference to the lives of others. “As they learn to understand they have the potential to give others the springboard to a professional career or to community service that Flinders has given them, they’re more than happy to put back into the University.”

Few things put the importance of peace at the front of your mind more powerfully than a trip to Hiroshima, as a group of seven students and staff from Flinders found during their two-week visit in early August.

The student participants, comprising undergraduates Jemma Arman, Adele Lausberg, Adam Ridley, William Nixon and postgraduate International Relations student Kushani Marshall, attended the annual student seminar and Masters summer school hosted in Hiroshima by the International Network of Universities, of which Flinders is a member.

They were accompanied by the Dean of the School of International Studies, Professor Malcolm Cook, and the Head of the International Office, Ms Virginia Pattingale.

The Flinders contingent visited the Hiroshima Peace Memorial Museum and attended the Remembrance Day ceremony held at Peace Park on August 6, at which one of the atom bomb survivors, or hibashuka, spoke to the audience.

After a background lead-up of seminars and lectures, the undergraduate students worked to prepare for a UN-style meeting involving some 70 students from INU universities in Australia, Asia and the US on the theme of “Responsibility to Protect”.

Flinders Law/Arts student Jemma Arman, who studied an international law topic in first semester, said that as well as gaining insights into the theory and practice of what constitutes acceptable international behaviour, she found the process of working in groups with students from other countries very rewarding.

“Learning how to work effectively where you have language and cultural barriers is really useful for anyone who’s going to work internationally, and you really need to get that experience somewhere,” Ms Arman said.

Ms Pattingale said the INU’s Hiroshima program provided a unique academic and personal experience for participants and it is hoped funding to support increased numbers of places for Flinders students will become available in coming years.
Research

Storytelling a fitting art for the sciences

All scientists are good writers – they just don't get the recognition or support they deserve, according to Dr Danielle Clode. Zoologist, Rhodes Scholar and award-winning popular science author, Dr Clode joined Flinders’ Department of English and Creative Writing earlier this year. She teaches, among other topics, both professional and creative writing to scientists.

"Writing skills are the same whether you’re writing a scientific paper, a magazine article or a novel," Dr Clode said. "It’s all about clarity, writing in a way that’s transparent so that the information you’re trying to get across is conveyed as clearly and as effectively as possible," she said. "Sometimes that can just be functional but sometimes it can be beautiful."

She speaks from experience as the author of six successful books which cross boundaries between science and literature. Her first book, Killers in Eden, is the extraordinary tale of cooperation between killer whales and human whalers in New South Wales’s Twofold Bay.

"It’s a fantastic story that’s only ever been told from the whalers’ point of view and I wanted to tell it from the killer whales’ point of view."

The book was made into an ABC TV documentary which is screened regularly in Australia and abroad. Voyages of the South Seas, which traces the history of French exploration in Australia, won the Victorian Premier’s Literary Award for Non-Fiction in 2007 and has just been translated into French. Her next book, Prehistoric Giants: the Megafauna of Australia was commissioned by Museum Victoria and was last year shortlisted in the Children’s Book Council of Australia Awards.

"It’s been a huge hit. It’s now on the Premier’s Reading Challenge lists in a number of states and has gone into many libraries as well," she said.

Prehistoric bird found in fossil treasure

A Flinders University-led expedition involving the WA Museum has found the fossilised remains of a prehistoric bird in a cave on the Nullarbor Plain.

Initially, it was thought the bones – which are more than 780,000 years old – were those of a wedge-tailed eagle. However, closer examination by bird palaeontologist Dr Trevor Worthy at the University of New South Wales revealed they belonged to an extinct, flightless bird called Progura – a giant version of the modern mallee fowl.

Flinders’ palaeontologist, Dr Gavin Prideaux, said the almost complete skeleton was unearthed amidst dozens of bird bones in a cave known as Leaena’s Breath Cave – about 70 kilometres on the WA side of the border with South Australia.

“Our initial assessment led us to believe it was a wedge-tailed eagle, which would have been a great find given the iconic status of the modern species,” Dr Prideaux said.

“But after sending some detailed images to Trevor he confirmed that they were in fact the bones of a giant mallee fowl – which tells us that giant mallee fowls lived 1000 km further west than they have ever been found before,” he said.

"Current dating shows that the fossils are at least 780,000 years old and probably much older. Surrounding these larger bones are literally hundreds of songbird bones, a situation mirrored through the rest of the deposit.

“This cave has been acting as a death trap for birds as well as a range of mammals and reptiles for at least a million years, which is just one thing that makes this one of the most interesting and unique palaeontological sites in Australia.”

The discovery was made on only the second day of the field trip which is a collaboration between Flinders University and the Western Australian Museum.

Video and blogs of the expedition can be found at:

http://www.flinders.edu.au/cave/

Dr Danielle Clode

A few people died," she said. Dr Clode attributes her success to having the ability to tell a story. “Telling stories in science is just as important as being able to collect data and make sense of it. It’s what you do with it – how do you construct a story around some evidence or information?”

Vincent Ciccarello

Dr Danielle Clode

few people died," she said. Dr Clode attributes her success to having the ability to tell a story. “Telling stories in science is just as important as being able to collect data and make sense of it. It’s what you do with it – how do you construct a story around some evidence or information?”

Vincent Ciccarello

Dr Danielle Clode

Prehistoric bird found in fossil treasure

Dr Danielle Clode

A Flinders University-led expedition involving the WA Museum has found the fossilised remains of a prehistoric bird in a cave on the Nullarbor Plain. Initially, it was thought the bones – which are more than 780,000 years old – were those of a wedge-tailed eagle. However, closer examination by bird palaeontologist Dr Trevor Worthy at the University of New South Wales revealed they belonged to an extinct, flightless bird called Progura – a giant version of the modern mallee fowl.

Flinders’ palaeontologist, Dr Gavin Prideaux, said the almost complete skeleton was unearthed amidst dozens of bird bones in a cave known as Leaena’s Breath Cave – about 70 kilometres on the WA side of the border with South Australia.

“Our initial assessment led us to believe it was a wedge-tailed eagle, which would have been a great find given the iconic status of the modern species,” Dr Prideaux said.

“But after sending some detailed images to Trevor he confirmed that they were in fact the bones of a giant mallee fowl – which tells us that giant mallee fowls lived 1000 km further west than they have ever been found before,” he said.

“Current dating shows that the fossils are at least 780,000 years old and probably much older. Surrounding these larger bones are literally hundreds of songbird bones, a situation mirrored through the rest of the deposit.

“This cave has been acting as a death trap for birds as well as a range of mammals and reptiles for at least a million years, which is just one thing that makes this one of the most interesting and unique palaeontological sites in Australia.”

The discovery was made on only the second day of the field trip which is a collaboration between Flinders University and the Western Australian Museum.

Video and blogs of the expedition can be found at:

http://www.flinders.edu.au/cave/

Vincent Ciccarello

Dr Danielle Clode

few people died," she said. Dr Clode attributes her success to having the ability to tell a story. “Telling stories in science is just as important as being able to collect data and make sense of it. It’s what you do with it – how do you construct a story around some evidence or information?”
Virtues to guide approach to historical fiction

Should creative artists be concerned with historical accuracy or dramatic effect? And what do their choices say about the integrity of their work, their profession and themselves? These are questions posed in a new book, Integrity and Historical Research, edited by and with contributions from Dr Tony Gibbons and Dr Emily Sutherland, Research Fellows in the School of Humanities.

"Integrity is a term that is bandied about and while we probably all think we know exactly what we mean by it, do we all mean the same thing?" Dr Sutherland said. Dr Gibbons agrees.

"There is a fair amount written about the concept of integrity but there are competing theories at the moment. The time seems ripe for some work on it," he said.

A general consensus emerges between the 11 chapter authors, acknowledged thinkers and practitioners in the area from around the globe, that integrity is a negotiation between competing virtues.

"It seems to me that if you want to address problems like integrity or to address problems of morality or ethics, then the place to start is the virtues," Dr Gibbons said.

"The moral person is one who grows up and develops a character and has the ability to juggle justice with compassion, with temperance, with prudence and so on," he said.

This notion of exercising judgement, of balance, is critical for anybody crossing the boundaries between historical fiction and non-fiction. Dr Sutherland cites the portrayal of Thomas More by Hilary Mantel in her Booker Prize-winning Wolf Hall as one example of where the historical evidence suggests more balance was required.

"I felt Mantel took the worst aspects of Thomas More and emphasised those. But one can only judge people’s actions in the light of the period in which they lived," she said.

Landscape exhibition captures spirit in the land

The Australian landscape – an enduring subject in the history of Australian art and one that is vital to the ongoing formation of images of a national identity – is the focus of a national touring exhibition, now showing at Flinders University’s City Gallery.

Spirit in the Land explores the connection between 10 Australian artists and their special appreciation and engagement to the spiritual ethos and power of the land. The exhibition brings together key paintings and sculptures by some of Australia’s most influential artists: John Davis, Russell Drysdale, Rosalie Cascoigne, Emily Kame Kngwarreye, Dorothy Napangardi, Sidney Nolan, John Olsen, Rover Thomas and Fred Williams.

Drawn from private, state and public gallery collections throughout Australia, the more than 40 works unearth shared themes and cultural exchanges of these artists whose work spans historical and contemporary, Indigenous and non-Indigenous art.

Director of Flinders University Art Museum, Fiona Salmon said the Museum was privileged to bring to Adelaide one of the most ambitious Australian exhibitions to tour nationally in recent years.

"We are grateful, as a museum with particular interests in making connections between Indigenous and non-Indigenous art practice, that we were presented with the opportunity to do so," Ms Salmon said.

"In bringing the show together, co-curators Robert Lindsay and Penny Teale have done a superb job: each work is without a doubt a masterpiece in its own right," she said.

Spirit in the Land is jointly curated by McClelland Gallery Sculpture Park’s Director, Robert Lindsay and Senior Curator, Penny Teale. It is on show at Flinders University City Gallery until October 23.

Photos

Ashton Cladidge, iStockphoto.com