

## My research

### Sculpting with digital foam



**NAME:** Ross Travers Smith, PhD candidate

**BACKGROUND:** Ross Travers Smith holds a Bachelor of Information Technology (software engineering) with honours from the University of South Australia and is a PhD candidate at UniSA's Wearable Computer Lab.

**WHERE:** UniSA Mawson Lakes Campus, School of Computer and Information Science, Wearable Computer Lab.

**RESEARCH:** Humans have used their hands for shaping and manipulating physical materials throughout time, from making sand castles at the beach to sculpting clay on a pottery wheel.

Computer modelling systems have adopted techniques based on these activities and incorporated them into three-dimensional CAD environments.

At present, a problem with these systems is that using a keyboard and mouse to make a 3D model requires a lot of training and is nothing like sculpting a piece of clay in your fingers.

Ross and his colleagues at the Wearable Computer Lab, Professor Bruce Thomas and Dr Wayne Piekarski, have been exploring how computer modelling can be made more similar to sculpting modelling clay. To achieve this, they have developed a new sensor called "digital foam" which recognises and responds to human touch. Digital foam looks and feels like a normal piece of soft foam material that can easily be squashed and deformed and has many sensors embedded into its surface that capture its shape.

The sensor information is used to control the shape of a 3D computer model, allowing users to create free-form shapes using only the digital foam device and their fingers. The unique aspect of digital foam is how it feels during operation. Compared with existing devices, such as a keyboard and mouse, the soft foam sensor provides a unique tactile response that allows users to express their modelling ideas in a more natural way.

**TECHNOLOGY:** The sensor is constructed with a special conductive foam material that has unique electrical properties, allowing its shape to be captured by a computer. This foam sensor has been used to construct a sphere-shaped computer input device that allows 3D computer models to be created by squashing the device much like we do when sculpting clay. The initial prototype has 162 foam sensors embedded in its surface. These are used to detect squeezing, squashing, twisting and rolling gestures.

**RESULTS:** Multiple applications for digital foam are anticipated, from human-computer interfaces for mobile devices and home entertainment games controllers to medical mannequins for training surgeons and doctors. UniSA's commercialisation arm ITEK is investigating market and investment opportunities.

More information is available at [wearables.unisa.edu.au](http://wearables.unisa.edu.au)

## THE STORY SO FAR

### 2008

**February 6th:** Australian Education Union starts formal enterprise bargaining negotiations with State Government.

**March 31:** Previous three-year agreement expires.

**April 16:** Government offers 9.75 per cent over three years. Rejected by the union.

**May 16:** 3000 teachers rally on the steps of Parliament House, demanding an improved offer.

**June 10:** Government puts revised offer to teachers which changes conditions but does not vary pay offer. This is rejected.

**June 17:** Teachers hold first full-day strike. 10,000 rally on steps of Parliament.

**First week of August:** Teachers hold rolling half-day stoppages at schools, affecting 170,000 students.

**September 15:** AEU and the Government start formal mediation in the Industrial Relations Commission. Teachers postpone strikes planned for mid-October.

**October 1:** AEU calls for an interim pay rise of 7 per cent. The Government rejects this.

**October 29:** Government makes third offer, of 12.5 per cent for 84 per cent of classroom teachers and 10.5 per cent for other staff including principals and support workers, and a new funding model for schools. Rejected by the union.

**October 30:** Teachers hold half-day strike.

**November 3:** AEU announces it will strike on November 21, the final day of Year 12 exams and hold rolling half-day stoppages until the end of term. The union also presents a settlement proposition to the Government, reducing its wage claim from 21 per cent to 18 per cent and asking for a controversial funding model to be dealt with separately.

**November 10:** Fourth Government offer of 13.6 per cent (14.21 per cent compounded over three years) for classroom teachers and 11 per cent (11.4 per cent compounded) for other staff and including the proposed funding model. Rejected by the union.

**November 20:** Eleventh-hour decision by the Industrial Relations Commission ordering



# Crunch time for

After more than 18 months of negotiations and hostility, the dispute between the teachers union and the State Government may finally be nearing a resolution. Education Reporter **LAUREN NOVAK** looks at the fallout.

**T**HE end of another school year is rapidly approaching and it threatens to be the second time teachers break for holidays uncertain of their future pay and conditions. The Australian Education Union has been locked in a battle of wills with the State Government over enterprise bargaining since February last year.

So far, no amount of rallying, striking or negotiating has brought them to an amicable resolution.

The parties are in the death throes of arbitration in the Industrial Relations Commission.

The last pieces of evidence were presented last week, final submissions will be heard next week and a decision is expected by the end of the year.

Teachers, parents, students and the Government have grown weary of the long-running saga and are all awaiting an outcome.

The commission is considering proposals from both sides about a new award covering pay and working conditions and any decision will be final.

However, it will not resolve the disagreement over a government-proposed funding model which would allocate money per student instead of per class - the major sticking point in the dispute.

The model remains a separate issue which will need to be resolved outside the commission.

Regardless, AEU state president Correna Haythorpe says her members are "tired and disillusioned" and eager for closure on the drama.

"They feel the Government has held them to ransom over the salary and funding model by tying the two together, but we were not prepared to settle for a salary offer that also contained the funding model," she said.

Industrial Relations Minister Paul Caica is "hopeful that a decision will be made by the end of the year" but is quick to add that it is "a matter for the commission".

He says "considerable effort" has been made by both parties to finalise proceedings.

"The Government will await the findings of the Full Bench of the Industrial Relations Commission," he said.

Meanwhile, Education Minister Jane Lomax-

Smith says teachers have been "getting on with the job" of educating more than 160,000 students in public schools. "We've seen some terrific achievements," she said.

Despite this, morale is low.

Parents are keen to see a resolution.

Parent representative David Knuckey said: "It's got to be demotivating to see it on the front page of the paper, on the television and on the radio for going on two years now."

Mr Knuckey, the director of the SA Association of State School Organisations, says the dispute has damaged relationships between teachers, parents and the Government and tarnished the public image of the profession.

"It's gone on for so long, it can't have benefited anybody," he said.

**“ They feel the Government has held them to ransom over the salary and funding model by tying the two together**

"I don't think it's done the reputation of the Government to handle issues like this any good.

"I don't think it's helped education.

"There's got to be a better way of doing this."

Turning his attention to the future, Mr Knuckey urges the parties to learn lessons from the saga.

"What we need is ongoing continual communication so that we don't start the process so very far apart next time," he argued.

"The ludicrous aspect is that it will almost be time to start on the next one (enterprise bargaining agreement) soon.

"Given that we will be starting this process again in the not-too-distant future, we would hope that the parties don't just stop talking."

Ms Haythorpe concedes there is "every possibility" the union and Government could be drawn into negotiations again as soon as the beginning of 2011, depending on the outcome of present arbitration.

"All being normal, we would have started our pre-enterprise bargaining work early next year, ready for negotiations at the beginning of 2011," she said. "If they backdate it (the

arbitration decision), we will begin negotiations again very soon.

"But if they decide to make the (new) award (take effect) from now, then it is a three-year time line."

Whatever decision is made, both parties must abide by it.

The commission will make a decision about what staffing protections will be formalised in the award, such as pay rates, hours worked, class sizes, how many teachers and other staff a school will have and the proportion of permanent or contract staff.

The union wants protections to guarantee small class sizes, arrest the increasing workload and hours teachers take on and provisions for more school support officers and counsellors.

"Once the commission makes a decision about that, then the Government has to fund it," Ms Haythorpe said.

While the state's 11,000-odd public school teachers have waited for their financial and working futures to be decided, other public servants have successfully and swiftly negotiated new agreements and considerable pay increases.

The Government granted a 15 per cent wage rise to firefighters and reached a deal to pay ambulance workers up to 46 per cent more.

The teachers dispute, however, is in the commission.

Industrial Relations expert Andrew Stewart says he is baffled about why the process has been so drawn out.

"What I don't understand is why it's taken so long when you're talking about a commission that's not overflowing with work," he said.

"A typical bargaining process will take a few months and that's when things are going badly.

"It's not that you spend day after day in submissions.

"You go in there and have a day's argument and then you disappear for a month or two and then you come back for a hearing but one side may ask for a postponement and so it all adds up.

"If it's taken this long, there must have been a lot of evidence and a lot of argument, which means the resulting decision will have to be substantial and will take a while to prepare.

"Presumably we're still some months away from an outcome."

## My job

### From a degree to a career

**NAME:** Sarah Kurlinkus

**JOB:** Wardrobe assistant, Credit Union Christmas Pageant

**AGE:** 34

**STUDY:** I have undertaken various avenues of study all related to my current role. I have completed a diploma at Regency TAFE in textiles, clothing and footwear. In addition, I have completed study at the Centre of Performing Arts with a major in costumes. My diploma at TAFE and course at the Centre of Performing Arts were each two years in duration.

The courses I have undertaken are specifically designed for those with a creative flair, good attention to detail and a passion for creativity in the arts sector.

The courses gave me a basic understanding of patterns and shapes which set the foundation on which I have built my breadth of experience.

All of the study I have undertaken has been practical and contributed to my career and I would recommend my courses to those interested in this industry as it gives you an understanding of the shape of the body and how fabrics behave. These are all critical elements when designing costumes.

**CAREER:** My studies set the foundation of knowledge for my career, no matter in which direction it has travelled. I have been lucky enough to have a wide and varied CV to date, with seven years at Ricarp Productions (designing costumes for showgirls and drag queens) to working on a theme park costume team in Asia and for the past two years producing body-building costumes. I believe if it was not for my education and experienced background, then I would not be working at the Credit Union Christmas Pageant.

I would see my career advancing in my current place of employment. I aspire to be the supervisor for the Credit Union Christmas Pageant wardrobe team.

The best part of my job is making strange and wonderful things, things that I know will bring a smile to someone's face on pageant day, which this year will be held on November 14.

My chosen career is one I would highly recommend, as every day there is something new. It is very creative and ideally would suit anyone who has a passion for creative elements outside the square of a day-to-day existence.

If I had to say there was a negative, it is the blisters on my hands from two months of ironing more than 1000 costumes after the pageant.



teachers to cancel a planned full-day strike on November 21 and for the parties to enter formal arbitration proceedings.

**November 21:** Teachers cancel the strike but most parents caught short and classrooms are left empty.

**November 27:** Premier Mike Rann accuses the union in Parliament of "outrageous" antics.

**December 3:** Government offers TAFE SA workers a 13.6 per cent pay rise compounded over three years in a bid to create a separate enterprise agreement from that of school teachers but is rejected in a ballot of TAFE employees.

### 2009

**January 23:** Teachers begin "Apple for Teacher" campaign to pressure the Government, vowing to deliver a symbolic apple to the Premier and key ministers every school day until the dispute is resolved.

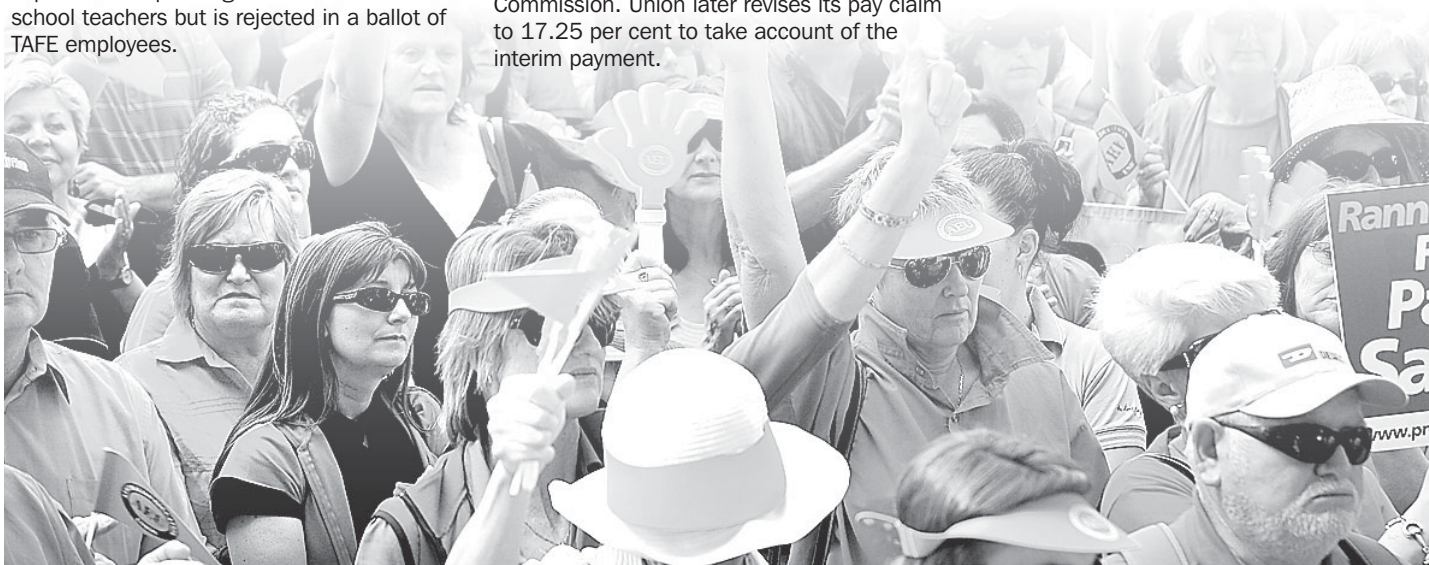
**January 28:** Union reverts to its 21 per cent pay claim in its arbitration application to the Industrial Relations Commission.

**February 9:** Public preschool, school and TAFE teachers awarded a 3.75 per cent interim pay rise by the Industrial Relations Commission. Union later revises its pay claim to 17.25 per cent to take account of the interim payment.

**August 3:** Union and government return to the Industrial Relations Commission to begin arbitration hearings, expected to take at least two months.

**October 8:** Union members rally on the steps of Parliament House urging the State Government to increase funding for special needs students.

**October 20-23:** Final submissions for arbitration expected to be heard in the Industrial Relations Commission. A formal decision is expected by the end of the year.



# tested teachers



### THE MAJOR STICKING POINTS

- SA teachers remain at the bottom of the national pay scale
- The government-proposed funding model would allocate money per student instead of per class

## Wage parity - what the fight is all about

■ A wage rise of 21 per cent would lift the top salary to \$83,821 by next year.

■ The Government's final offer was 13.6 per cent (14.21 per cent compounded over three years) which would raise the top salary of 84 per cent of classroom teachers to \$75,505 in the first year and \$78,148 in the third. Other staff, including principals and support workers, would get 11 per cent (11.4 per cent compounded).

■ Top South Australian independent school teachers are paid up to \$73,000 while Catholic school teachers are paid similar wages to public school teachers.

■ South Australian teachers are the lowest

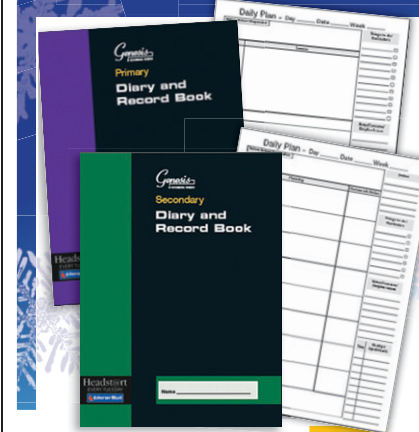
paid in the nation, on a top salary of \$70,987.

■ Figures supplied by the AEU show senior teachers are paid about \$71,993 in Queensland, \$77,546 in Victoria, \$78,703 in New South Wales, \$74,279 in the Australian Capital Territory, \$71,133 in Tasmania, \$81,076 in Western Australia and \$73,652 in the Northern Territory by 2012.

■ Teachers in WA last year secured pay rises of between 15.8 per cent and 21.5 per cent over three years. In the same year, senior Victorian teachers became the best paid in the nation after a 13 per cent rise over three years and built-in bonuses.

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