

## **PhD student saves Australian water authorities \$90 million a year on pipe maintenance**

**And wins the 2012 CSIRO Cooperative Research Centres' Award for early career researchers**

A young PhD student has won the CSIRO-sponsored speakers' award for early career researchers for his presentation at the Cooperative Research Centre (CRC) Association's annual conference in Adelaide.

Fengfeng Li, a Queensland University of Technology student with the CRC for Infrastructure and Engineering Asset Management (CIEAM), has been working to solve the high-cost problem of maintaining Australia's ageing water pipes, something that has cost Australia's water authorities an estimated \$10 billion dollars over the past 20 years.

"The costs come through extended loss of water supply, water contamination, massive losses of water, and high costs of repair," Mr Li said. "There are also safety issues with bursting water pipes including the case this year when a young mother died after falling into a burst hot water pipe below a footpath in Beijing."

Mr Li's research used sophisticated computer modeling to take into account the equipment needed to maintain pipes, the location of the pipes and the best time to schedule work so it will not disrupt the local community, but still avoid pipes bursting unexpectedly.

Based on historical data, he can also predict which pipes are most likely to fail and the most efficient way to schedule repair works.

"All over the country, in cities especially, pipelines in water distribution systems are ageing and the likelihood of failing is increasing," says Mr Li. "Most pipelines tend to be hidden underground. They aren't laid out in neat grids, they're hard to access, they're of different ages and construction, they can cross local council borders, and maintenance services often means interruptions for customers.

"It's essential that water pipelines can be maintained effectively at the lowest cost possible. But it's difficult to get the best outcomes through traditional maintenance planning, especially when this planning depends so much on individual planners."

Professor Lin Ma, Li's PhD supervisor is impressed with his research: "Li has independently developed the optimisation model for this complex problem," she said. "It's ground breaking research."

Fengfeng Li spoke at the CRCA conference yesterday with 5 other CRC early career researchers who were selected on a competitive basis to speak at the conference. About 40 students applied to present at the conference. The audience voted electronically on the speaker they thought gave the best overall presentation and had the best content.

As the winner, Fengfeng wins \$1500 which was awarded at the CRCA Conference last night at the National Wine Centre in Adelaide by Australia's Chief Scientist, Professor Ian Chubb.

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