

OCCASIONAL ADDRESS

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Delivered at the graduation ceremony for graduates from
the Faculty of Information Technology

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Chancellor, Vice-Chancellor, members of the University Council, Staff,
Distinguished Guests, Graduates, Parents and Friends, Ladies and Gentlemen.

First, let me extend my congratulations to our new graduates.

Graduation is one of the most spectacular and significant University traditions.
Today is a special occasion for everyone. It marks the culmination of an
important educational achievement.

Graduation is a time to revel and reflect on your personal growth, your intellectual
growth, your achievements at university, and the strong support you enjoyed
from academics, family and friends.

It's a particularly joyful and exciting occasion for academics, family, and friends
because we have all invested so much in each one of you, and believe it is not
unreasonable to expect great things from you in the future.

In the years ahead you will always look back to your days here at the University
with affection, and you will carry forward where ever you go the vibrant spirit that
is UTS.

You leave the university empowered, to influence and shape the world with not
only an Information Technology degree but a rich set of experiences having
spent several years in an institution that pursues excellence, values intellectual
freedom, enriches social and cultural diversity, and exudes a strong commitment
to local, national and global communities.

Of course, your education is ongoing; it does not end today, and there are, no
doubt, other educational milestones awaiting you tomorrow.

Graduation is a time to look to the future, and my message to the graduates today is a simple one! I want to encourage each one of you to use the skills you developed during your time at UTS to awaken, or if need be *unleash*, your dreams and vigorously pursue them with passion, tenacity, and courage.

It has been said that some people follow their dreams, but others hunt them down and beat them mercilessly into submission. So it is just a question of choosing your method of attack.

As noted earlier I am the founder of the University Robot Soccer Team. Robot Soccer represents one of the many ways that UTS engages with the international community for the purpose of furthering research and education while affording its students the opportunity to participate in an important International initiative.

The team was established in January 2003 and in a matter of months developed an impressive robot soccer system that qualified for the 2003 Robot Soccer World Cup that was held in Italy last July.

Our robots look like puppies, each one about the size of a 3 month old Labrador. They have a head with a camera and 4 legs. A robot is just a special computer that takes its input from sensors such as a camera, and sends output to motors that move its body parts; head, legs, ears, and tail.

The team of staff and students design sophisticated software that the robots use to play soccer without any human intervention, on a field that is roughly 4 metres by 5 and a half metres in size. Each game consists of a team of 4 robots against another team of 4 robots over two 10 min halves. The software allows the robots to make decisions about how they should play the game. They robots are not remote controlled, but act completely autonomously by responding to the information they receive through their senses using the software the team has developed.

Our programs allow us to build high level robot skills like kicks and specific behaviours such as player positions. For example, a goalie is not designed to roam all around the field but to stay in or near the penalty area with the objective of stopping goal attempts by the opposition and always having his body between the ball and the goal.

Our team has a *vision* to be internationally competitive by pursuing excellence and innovation. In practice what that means that we want our team to be a really cool! So cool that other teams wish they could do what our team of robots can do on the soccer field. We targeted *team collaboration* as our means to competitive advantage.

At our first Robot Soccer World Cup event last July we beat the University of Texas 7-1, and the winners of the Japanese Open in a fiercely contested match 3-2.

To put our performance into perspective, it is important to realise that it took the University of Melbourne three years to score their first competition goal!

In addition to the soccer the competition also includes Challenges, which involve giving the robots difficult tasks that have wider application beyond the game of soccer that could be used in humanoid robots that assist the elderly in their homes, or in deep sea robots that can help manage the Great Barrier Reef.

One challenge involved obstacle avoidance. The ability to avoid obstacles is a fundamental skill for any mobile robot that has to negotiate a physical space on land, in the home, or under water.

The UTS Robot Soccer Team gained a perfect score in the Obstacle Avoidance Challenge. We beat Carnegie Mellon University, the Number One Robotics Lab in the world.

Three weeks ago the team competed at the Australian Open and beat the current world champions, UNSW, as well as the Microsoft team from Germany to become the 2004 Australian Champions.

The Robot Soccer World Cup initiative also has a *vision*. "By the year 2050, to develop a team of fully autonomous humanoid robots that can beat the human world cup soccer champions."

A *vision*, as we know, is not a *mission*! So even if you believe that a team of robots would not be able to beat a world class human soccer team by 2050, you can still embrace the dream. What matters is that you believe it is a dream worth pursuing because of the knowledge its pursuit will generate.

Visions guide our progress. They inspire us to strive harder and to achieve more than we otherwise might in a direction we believe is important and valuable. Pursuing a worthy vision almost always comes at a cost; it typically requires sacrifice and courage.

A famous American, General Omar Nelson Bradley, once said "*We need to learn to set our course by the stars, not by the lights of every passing ship*".

Indeed when we are at sea, whether we chart our course using the nearby stars or those in distant galaxies, it doesn't really matter since we can navigate just as well, but we must use the stars and not passing ships.

The key point being that lofty visions, no matter how high, have a crucial practical impact on your day-to-day decisions and your longer term strategic directions. They are not something you should keep tucked away in a treasure chest but something you never lose sight of.

In the case of Robot Soccer one of the important roles the vision plays is to guide rule changes. After each World Cup the rules of the game are modified to make the robot soccer game more like human soccer. For example, in 2002 players could *only* be penalised for obstructing the ball, but in 2003 that was extended to include sustained physical contact like attacking the goalie.

It is my hope that every graduate of the Faculty of Information Technology fulfils their potential. You have been trained to be Industry leaders and as leaders you must understand the power of a vision.

Successful leaders often tell us about the importance their vision had on their achievements in autobiographies, in Business Week articles, and while under the spell of Andrew Denton on the ABC's Enough Rope.

The running theme in their stories seems to be that success comes from leaders that can generate a vision and convince those around them of its value, which in turn inspires the power and energy required in *others* to pursue it.

Let me leave you with a thought from Mark Twain: Twenty years from now you will be more disappointed by the things you didn't do than by the ones you did do. So throw off the bowlines, sail away from the safe harbour. Catch the trade winds in your sails.

Explore..... Dream..... Discover.....