Vacation Scholarship

Thinking about what to do this Summer?
Want to work with Australia’s leading ICT researchers?
An opportunity to gain valuable research experience, make contacts for the future and earn some money! This summer get a Vacation Scholarship at CSIRO ICT Centre for an experience of a lifetime!

Closes 2nd Sept 2012

Undergraduate Summer Vacation Scholarships at CSIRO

CSIRO ICT Centre is offering summer vacation scholarships in our five research labs
- Intelligent Sensing and Systems
- Information Engineering
- Wireless and Networking Technologies
- Autonomous Systems
- Australian e-Health Research Centre

Summer vacation placements will be for 12 weeks.
This year’s program runs from 26 November 2012 to 15 February 2013.

This exciting program includes a two day conference in Sydney where you will get to network with vacation scholars and CSIRO staff from across Australia.

The projects are available in five locations around Australia
- Hobart
- Sydney
- Canberra
- Brisbane (Pullenvale and Herston)
- Perth

You could be
- Investigating computer vision and learning algorithms capable of detecting actions of players on the sporting field
- Designing a GUI language for Projection Augmentation of Physical Objects
- Building crisis maps for social media during natural disasters
- Developing a grumble worm
- Developing augmented reality technology for aquaculture decision making
- Benthic Habitat identification using feature space mapping
- Spinning the Web of linked sensor data
- Designing efficient communication networks for buildings of the future
- Optimising design methods for reconfigurable array antennas
- Locating people in buildings using inertial sensors, digital maps and particle filtering
- Using images of the retina to investigate the health of the brain
- Developing a user-centric web application for clinical diagnosis
- Modelling and detecting disease outbreaks
- Developing a voice user interface for mobile health care systems
The scholarship will include:
Placement for 12 weeks in a CSIRO research facility
Valuable research experience in the area of your choice
A scholarship payment of $1413.23 per fortnight (before tax)
Attendance at a conference to network and showcase your work.
Training in presentation skills

How to Apply
To see a full list of the projects per lab and to apply, see job numbers
- Intelligent Sensing and Systems - TAS/02168
- Information Engineering – N12/02165
- Wireless and Networking Technologies: NSW/12/02164
- Autonomous Systems: Q12/02162
- AeHRC: Q12/02163

www.csiro.au/careers
Position Details
Role summary for potential applicants

<table>
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<tr>
<th>Advertised Job Title:</th>
<th>ICT Centre Undergraduate Vacation Scholarship - Wireless and Networking Technologies Laboratory</th>
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<tbody>
<tr>
<td>Reference Number:</td>
<td>NSW12/02164</td>
</tr>
<tr>
<td>Classification:</td>
<td>CSOF 1.1</td>
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<tr>
<td>Salary Range:</td>
<td>$1413.32 per fortnight</td>
</tr>
<tr>
<td>Location:</td>
<td>Marsfield, Sydney</td>
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<tr>
<td>Tenure:</td>
<td>12 Weeks (26 November 2012- 15 February 2013)</td>
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<tr>
<td>Relocation Assistance:</td>
<td>☑ May be provided to the successful candidate or ☒ No not provided</td>
</tr>
<tr>
<td>Residency Status:</td>
<td>☑ Australian residents only or ☐ Open to Australian and International residents</td>
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Role Overview:
The 2012 Vacation Scholarship Program is designed to provide students with the opportunity to work on real-world problems in a leading R&D organisation. Participation in the Vacation Scholarship Program has influenced previous scholarship holders in their choice of further study and future career options. Many have gone on to pursue a PhD in CSIRO or to build a successful research career within CSIRO, a university or industry.
The scholarships are open to students who have completed (by November) at least three years of undergraduate study and who have maintained a credit average or higher. Scholarships are to commence on the 26th of November 2012 and continue for a period of 12 weeks. Each student will undertake a research project under the supervision of a research scientist or engineer. At the end of the program you will join students from across Australia at a two day conference in Sydney.
Duties and Key Result Areas:


In your application, please select your top three (3) research projects in order of preference (see the list of projects of offer at the end of this document). Some negotiation on the direction of the work will also be possible when you commence. Please note that work is offered in the above mentioned research areas in Sydney only.

During the scholarship students will:
- Work in exciting areas of cutting-edge research in engineering or computer science.
- Gain knowledge and hands on experience in relevant scientific/engineering projects.
- Be provided with access to the CSIRO's state of art facilities and scientific/engineering equipment.
- Work alongside internationally recognised research scientists and engineers.
- Learn how to present the outcomes of their project work in the form of an oral presentation at the completion of the program.
- Adhere to CSIRO requirements for information security, Health Safety and Environment (HSE) and Equity and Diversity in accordance to the CSIRO Code of Conduct.
- Be supervised at all times during the scholarship.

Selection Criteria:

*Please note: Under CSIRO policy only applicants who meet all the essential criteria can be appointed*

Pre-Requisite: Applicants must have completed (by November) at least three years of a Bachelors degree in a field relevant to the project/s selected, and preference will be given to those applicants who have obtained a credit average or higher.

**Essential Criteria:**
1. Selection Criteria
   - List your top 3 research projects (see the list of projects on offer at the end of this document) in order of preference and outline reasons why the three research projects were selected and indicate any previous experience that is relevant.
   - Provide reasons why you are interested in participating in the Vacation Scholar program.
   - Outline your career aspirations.

2. Academic Performance to Date
   - CV and academic transcripts
   - Information about your academic background.
   - Provide details of your achievements to date.

Please Note: Your CV must only be a maximum of four pages; your academic transcript should be attached to the back of your CV and all saved as one document.
CSIRO is a values based organisation. In your application and at interview you will need to demonstrate behaviours aligned to our values of:

- Integrity of Excellent Science
- Trust & Respect
- Creative Spirit
- Delivering on Commitments
- Health, Safety & Sustainability

Other Information:

How to Apply: Please apply for this position online at [www.csiro.au/careers](http://www.csiro.au/careers). You may be asked to provide additional information (online) relevant to the selection criteria. If so, then responding will enhance your application so please take the time to provide relevant succinct answers. Applicants who do not provide the information when requested may not be considered.

If you experience difficulties applying online call 1300 301 509 and someone will be able to assist you. Outside business hours please email: csiro-careers@csiro.au. Please note only two documents can be attached to your application.

Referees: If you do not already have the names and contact details of two previous supervisors or academic / professional referees included in your resume/CV please add these before uploading your CV.

Contact: If after reading the selection documentation you require further information please contact Chang Sung by email at chang.sung@csiro.au or by phone at (02) 9372 4431.

*Please do not email your application directly. Applications received via this method will not be considered.*

About CSIRO: Australia is founding its future on science and innovation. Its national science agency, CSIRO is a powerhouse of ideas, technologies and skills for building prosperity, growth, health and sustainability. It serves governments, industries, business and communities across the nation. Find out more! [www.csiro.au](http://www.csiro.au).

About CSIRO ICT Centre: The CSIRO ICT Centre is working to establish Australia as a global ICT innovator by delivering leading-edge Information and Communication Technology solutions for industry and society. The Centre has over 250 researchers working in laboratories in Sydney, Perth, Canberra, Brisbane and Hobart.

The Wireless and Network Technologies Laboratory is performing research in Wireless communications and networks, sensor networks, imaging, antennas and propagation which create technologies to transform the wireless industry.

## Wireless and Network Technologies
### List of Projects

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<th>Science Area</th>
<th>Project Description</th>
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<td>Digital Communications</td>
<td>Designing Efficient Communication Networks for Buildings of the Future.</td>
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<td>2</td>
<td>Digital Communications</td>
<td>Low complexity I/Q imbalance compensation for high speed low latency E-band systems</td>
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<td>3</td>
<td>Digital Communications</td>
<td>Technology trends and challenges of wireless backhauling for broadband networks.</td>
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<td>4</td>
<td>Digital Communications</td>
<td>Relay node communications for cell coverage extension in wireless networks.</td>
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<td>5</td>
<td>Digital Communications</td>
<td>User scheduling algorithms for avoiding interference in multi-user multi-antenna wireless broadband access.</td>
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<td>6</td>
<td>Digital Communications</td>
<td>Reducing energy consumption in high density wireless cellular networks.</td>
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<td>7</td>
<td>Digital Communications</td>
<td>Algebraic Invariants of Binary Codes.</td>
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<td>8</td>
<td>Antenna Design</td>
<td>Optimum design methods for reconfigurable array antennas.</td>
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<td>9</td>
<td>Antenna Design</td>
<td>Body-centric antennas.</td>
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<td>10</td>
<td>Antenna Design</td>
<td>New connected-array antennas for wideband communications: Waveguide simulator characterization with low noise amplifiers.</td>
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<td>11</td>
<td>Antenna Design</td>
<td>New millimetre-wave Substrate Integrated Waveguides – As good as it seems?</td>
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<tr>
<td>12</td>
<td>Antenna Design</td>
<td>Localization in Wireless Networks using Manifold Flattening Techniques</td>
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<tr>
<td>13</td>
<td>Signal Processing</td>
<td>Locating People in Buildings Using Inertial Sensors, Digital Maps, and Particle Filters</td>
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<tr>
<td>14</td>
<td>Signal Processing</td>
<td>Improving Indoor Wireless Location Using Inertial Sensors and Kalman Filtering</td>
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<td>16</td>
<td>Signal Processing</td>
<td>Protocol Development and Implementation for Wireless Tracking in Mesh Networks</td>
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<tr>
<td>17</td>
<td>Signal Processing</td>
<td>Low Power Localisation and Tracking</td>
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<tr>
<td>18</td>
<td>Signal Processing</td>
<td>Compact Wireless Tracking System using Embedded Linux</td>
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<tr>
<td>19</td>
<td>Signal Processing</td>
<td>Influence of temperature distribution on the performances of a randomly distributed microphone array</td>
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