

Brightest PhD students to be seconded to Defence to help build future fighting force of robots

THE nation's brightest mathematicians will be plucked from universities across Australia to work on missions including underwater drones, bomb-defusing robots and battlefield machines that can think for themselves as Defence looks to tap into academia to combat gaps in national security.

Defence Industry Minister Christopher Pyne has signed an agreement to boost the ranks of Defence Science and Technology Group with interns, acknowledging the potential to put PhD students' minds and theory toward "real world projects".

A recent Defence brief raised the critical military need for better autonomous systems technology to combat new regional threats by "determined adversaries" and to get "more machines into the fight".



Defence Science and Technology Group are to recruit university PhD interns to help develop new technology for 21st Century warfare. Picture: Department of Defence

These include greater human-machine integration where the machines can be developed to a stage they can dominate a battlefield and act “more autonomously and be sufficiently trusted to make life-death decisions”.

The agreement and program funding was made between Defence and the Australian Mathematical Sciences Institute at a maritime security conference in Sydney.

AMSI’s acting national program manager Glen Sheldon said yesterday PhD students, mostly all aged in their 20s, would come from universities across Australia for four to six month paid internships with DST Group, mostly in the maths, artificial intelligence, engineering, computer and automation fields.

He said the students, at least 100 over the next three years, would work on “discreet projects” as part of larger programs, the maths students for

example looking at data analytics, programming and advanced statistical data interpretation and patterns through to trusted autonomous navigational programming.



Defence Science and Technology Group will take on 100 PhD students to work on 'discreet projects'. Picture: Defence Department

“A lot of the stuff they will do they will run through security clearances and it’s not always public the sorts of things they will be doing,” Mr Sheldon said.

“It’s not like they are going out there and designing large scale nuclear weapons or anything ... it’s a multifaceted thing where we try and bridge the gap between research and industry and they work on projects feeding that back into the overall program.

“The thing is we produce brilliant research that doesn’t make it into the

commercial sphere and part of this project is to bridge that gap.”

It is understood these projects include boosting the capabilities of autonomous underwater vehicles to go further on less power and communications, counter Improvised Explosive Device (IED) robots project and the development of algorithms for better human-machine integration and artificial “swarm intelligence” of collective behaviour by different agents.

Some of their work will involve autonomous systems development, machines working autonomously from remote human commands in multiple but integrated unmanned vehicle missions.



Digital technology underpinning defence ships

Five Eyes alliance including the United States, Canada and UK defence and intelligence agencies will test increased autonomy for a large number of unmanned vehicles on air, land and sea at Jervis Bay off the NSW coast next year with the view they will eventually support forces in combat areas.

A similar AMSI program putting PhD maths students with other industries has seen many go on to full time employment including in IT, mining, banking and finance and the Commonwealth Serum Laboratory for development of biological data medicine.