

出國報告(出國類別：實習)

103 學年度赴新加坡國立大學之淡馬錫研究中心
合作與實習出國報告書

服務機關：國立暨南國際大學

姓名職稱：林繼耀副教授

派赴國家：新加坡

出國期日：103 年 6 月 30 日至 7 月 6 日

報告日期：103 年 7 月 20 日

摘要

繼 101 年度暨大電機系團隊前往新加坡兩家大學參訪後，本次赴新加坡國立大學之淡馬錫研究中心進一步落實學術合作關係，活動包括帶領兩名暨大研究生到淡馬錫進行為期 6 週的研究實習，代表暨南國際大學電機系與淡馬錫研究中心簽署合作備忘錄，以及為執行中合作計畫作定期討論。

一、目的

此出國行程完成四個主要任務：

1. 帶領兩名研究生前往參訪機關開始為期 6 週的研究實習。(附件一、二)
2. 代表暨南國際大學與參訪機關簽署合作備忘錄。(附件三)
3. 為執行中合作計畫作定期討論。
4. 討論接下來的合作方向。

二、背景

1. 新加坡國立大學 (NUS) 新加坡著名的高等學府並擁有歷史悠久的學術傳承；而淡馬錫研究中心為新加坡國防部在新加坡國立大學設立的校級研究單位。101 年度暨大電機系率領四人團隊曾參訪新加坡國立大學電機與電腦工程學及淡馬錫研究中心，而且筆者與淡馬錫研究中心有長期的合作關係，促成了本次學生赴新加坡實習的機會，並為簽署合作備忘錄建立了有利條件。
2. 第十一屆 IEEE International Conference on Control & Automation (ICCA 2014) 今年 6 月 18 至 20 日由 IEEE Control Systems Society 新加坡分會及國立中興大學主辦，大會刊錄了 260 余篇國際論文，吸引了 220 余位台灣與國外學者前來參與，圓滿結束。筆者是 ICCA 2014 台灣主辦方的總議程主席 (Program Chair)，負責大會主要籌備與執行任務，也是國際與國內與會學者的聯絡窗口。此行順道會見 IEEE

Control Systems Society 新加坡分會的常委，討論大會的會後事務

三、參與人員

林繼耀教授：專長為飛控與導航技術、流動感應技術、非線性動態控制、錯誤檢測、系統辨識。

莊皓學：電機系碩士一年級學生

劉存皓：電機系學士四年級學生(下學年升電機系碩士一年級)

四、行程及紀要

日期	行程	工作記要
6/30	埔里→新加坡	路程，安頓兩名實習生入住新大學生宿舍
7/1	新加坡	新加坡國立大學淡馬錫研究中心： 實習、研究專案專案討論
7/2		新加坡國立大學淡馬錫研究中心：簽署備忘錄，研究專案討論
7/3		新加坡國立大學電機與電腦工程學系：討論國際研討會 ICCA 2014 的會後事務
7/4		IEEE Control Systems Society Singapore Chapter: 交流
7/5		假日
7/6	新加坡→埔里	路程

1. 6月30日(晚)：抵達新加坡，並帶領兩名實習生到新加坡國立大學入住由合作單位安排好的學生宿舍。
2. 7月1日(上午)：
會見淡馬錫研究中心控制組組長 LIN Feng 博士，討論兩名實習生的專題內容、實質工作及目標，專題詳文請見附錄。

3. 7月1日(下午):

會見淡馬錫研究中心流體計算組組長 LAI Kwok Leung 博士，針對執行中合作計畫 Nonlinear Reduced-Order Modeling and Adaptive Control Design for Aeroservo-Elastic Systems 進行定期進度報告及規劃討論。

4. 7月2日(上午):

會見淡馬錫研究中心主任 KHOO Boo Cheong 教授，簽署合作備忘錄，討論將來合作方式。附雙方簽名的備忘錄影本請見附錄。出席者包括淡馬錫副主任 Joseph TING, Ben M. CHEN 教授(新大電機電腦系教授、淡馬錫顧問)，及 LAI Kwok Leung 博士。

5. 7月2日(下午):

會見淡馬錫研究中心控制組組長 LIN Feng 博士，討論無人機導航技術的合作機會、方向。過後連同控制組組員與暨大實習生進行無人機飛行實驗。

6. 7月3日(下午):

新加坡國立大學電機與電腦工程學系及 IEEE Control Systems Society 新加坡分會常任委員陳本美、向程、李崇興及王慶國教授們，討論了 ICCA 2014 會後事務。

7. 7月4日(下午):

與 IEEE Control Systems Society 新加坡分會成員出席 ICCA 2014 的慶功餐會。

8. 7月6日：返回台灣。

五、建議與心得

本次暨大電機系與淡馬錫研究中心簽署的合作備忘錄有效期3年，合作範圍涵蓋數個電機領域，包括通訊、電子和控制系統，因此呼籲暨大電機系有興趣的同仁參與，合作方式包括學生暑假實習、學術參訪和實質合作研究專案。



Photo 1. 新加坡國立大學淡馬錫研究中心(右至左: Khoo Boo Cheong 教授兼中心主任、林繼耀副教授、Joseph Ting 中心副主任)。

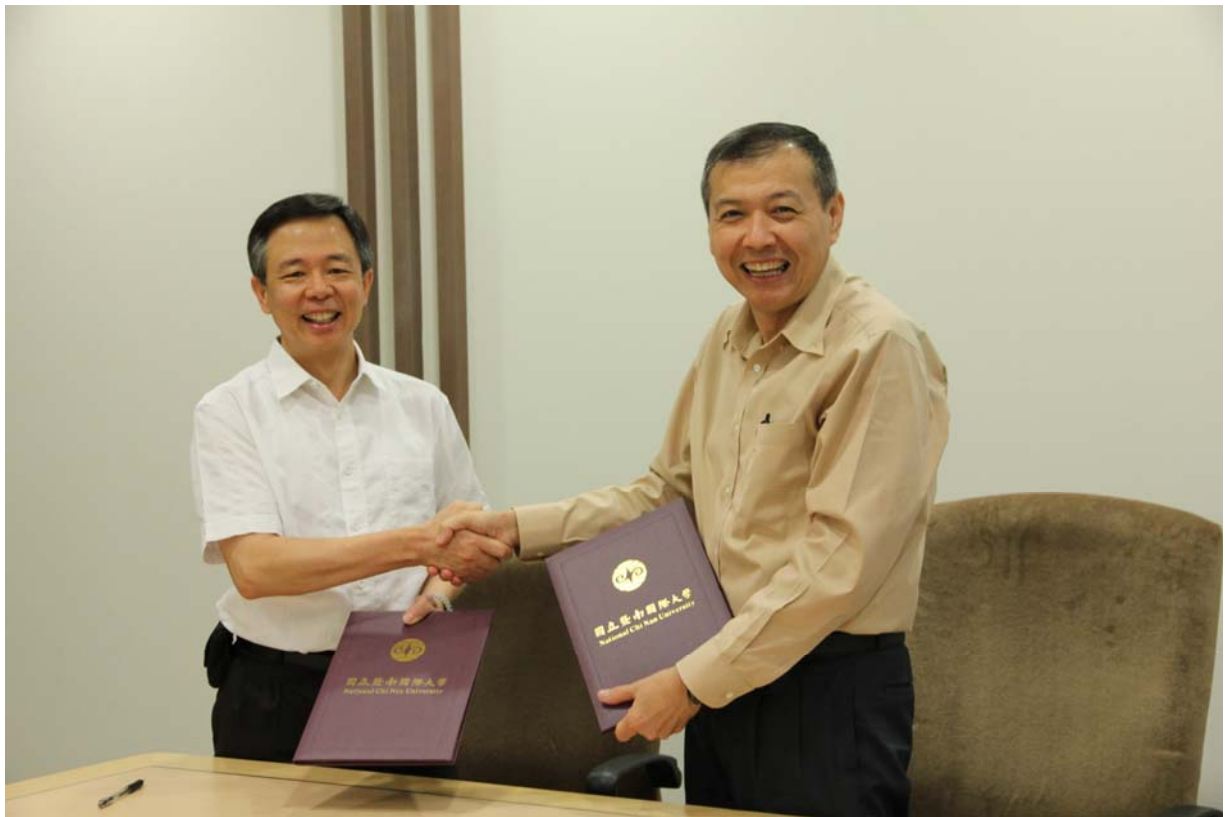


Photo 2. 新加坡國立大學淡馬錫研究中心(Khoo Boo Cheong 教授兼中心主任、林繼耀副教授)。



Photo 3. 無人機飛行實驗（著白襯衫者：林繼耀副教授）。



Photo 4. 無人機實驗（前方：劉存皓同學、林繼耀副教授、崔敬強組員；後方：董祥旭組員）。

附件三

MEMORANDUM OF UNDERSTANDING

between

NATIONAL UNIVERSITY OF SINGAPORE

and

NATIONAL CHI NAN UNIVERSITY

This Memorandum of Understanding ("MOU") is made on the 2nd day of July 2014 ("Effective Date")

between

NATIONAL UNIVERSITY OF SINGAPORE, (Company Registration Number: 200604346E), a public company limited by guarantee incorporated in Singapore under the Companies Act (Cap. 50) and having its registered office at 21 Lower Kent Ridge Road, Singapore 119077, acting through its Temasek Laboratories at NUS, (hereinafter referred to as "**NUS**"),

and

NATIONAL CHI NAN UNIVERSITY, (中華民國 84 年 4 月 18 日教育部台(84)高字 017552 號函) and having its registered office at 1 University Road, Puli Township, Nantou County, Taiwan 54561, Republic of China (hereinafter referred to as "**NCNU**").

NUS and NCNU may hereinafter be referred to jointly as "**Parties**" and singularly as "**Party**".

RECITALS

WHEREAS,

- A. NUS is a university of global standing, with distinctive strengths in education and research with an entrepreneurial dimension.
- B. NCNU is a university of international standing, with characteristic strengths in education and research.
- C. The Parties agree to explore joint research and collaboration of mutual interest in various aspects of education and academic research in

electrical engineering, and determine the basis of such cooperation, on the following understanding.

- D. This MOU sets out the understanding of the Parties in relation to such cooperation.

Article 1 AREAS OF COOPERATION

The Parties agree to promote cooperation in education and academic research between Temasek Laboratories at NUS (TL@NUS), and the Department of Electrical Engineering at NCNU (EE@NCNU). The areas of cooperation include electrical and electronic engineering, control systems and communication technology. Specifically, the Parties agree:

- (a) to exchange students for non-credit granting and non-degree granting activities between TL@NUS and EE@NCNU;
- (b) to facilitate mutual visits of faculties and research personnel between TL@NUS and EE@NCNU;
- (c) to provide a platform for the development of substantive collaborative research programmes between TL@NUS and EE@NCNU.

Article 2 ARRANGEMENTS AND FUNDING

To implement the collaborative activities envisaged under this MOU, representatives of the Parties may meet periodically to negotiate and conclude specific programmes of cooperation, including their financing, with each other and with other parties provided that none of the Parties shall have the power to bind the other Party without such other Party's consent in writing thereto.

The financial arrangement relating to each programme of cooperation will be in accordance with the specific programme of cooperation. Subject to the immediately foregoing and in the absence of any specific agreement to the contrary, the Parties agree that all expenses relating to a programme shall be borne by the Party which incurs such expenses.

Article 3 MANAGEMENT COMMITTEE

The Parties can appoint representatives to manage and oversee the activities of the specific programme of cooperation. The representatives of the Parties can

meet as and when necessary to review progress in the implementation of activities related to the areas of cooperation, define new areas and programmes of cooperation as well as discuss matters related to the MOU.

Article 4
INTELLECTUAL PROPERTY, INVENTIONS AND INNOVATIONS

All intellectual property held by a Party prior to entering into this MOU or disclosed or introduced in connection with this MOU and all materials in which such intellectual property is held, disclosed or introduced shall remain the property of the Party introducing or disclosing it. Subject thereto, the arrangements in relation to intellectual property shall be agreed separately for each programme of cooperation.

Article 5
PUBLICATION OF ARTICLES

The Parties may, with the written consent of the other Party, such consent not to be unreasonably withheld, publish the findings of any collaborative activities of the Parties in the form of an article in a journal, newspaper or other magazine, in hardcopy and electronically, provided that where an application for registration of a trademark, service mark or design or an application for any other form of registrable intellectual property right will be made, such an article shall not be published for a period of up to ninety (90) days for the said application to be made, although the Party wishing to publish will not unreasonably refuse a request from another Party for additional delay in the event that property rights would otherwise be lost. A copy of the article shall be provided prior to publication to the Party whose written consent is required hereunder for that Party's perusal and written consent.

This clause shall be without prejudice to any undertakings given by either Party in relation to the approval or restriction of publications in favour of third parties who are funding any collaborative activities or any research being undertaken by researchers of either Party.

Article 6
REPRESENTATION TO THE PUBLIC AND CONFIDENTIALITY

Neither Party shall use the name or logo of the other Party for any purpose, whether in relation to any advertisement or other form of publicity, without obtaining the prior written consent of the other Party.

Notwithstanding the generality of the above, each Party, with the prior written consent of the other Party, such consent not to be unreasonably withheld, may notify third parties of the fact that this MOU is in effect.

All information furnished in relation to this MOU by one Party to the other, which is clearly identified as proprietary or confidential at the time of disclosure, will be kept confidential by the receiving Party and will not be disclosed to any third party and shall not be used otherwise than to carry out the provisions of this MOU, unless agreed in writing between the Parties.

The provisions of this Article will not apply to information in the public domain not as a result of any breach by receiving Party of its obligations in the foregoing paragraph; information in the possession of the receiving Party prior to the disclosure of the information; information which is independently developed by the receiving Party; information required to be released by law or court order; and information which is rightfully received by receiving Party from third parties without any breach of confidentiality obligations.

This Article will apply only to information disclosed while this MOU is in force, but the restrictions contained herein shall survive the expiration or termination of this MOU for three (3) years from the date of expiration or earlier termination of this MOU.

Article 7 TERM OF MOU

This MOU shall become effective on and from the Effective Date and shall remain in force for a period of three (3) years, unless one Party gives notice of not less than three (3) months in advance that it wishes to terminate the MOU.

The Parties shall jointly review the collaboration envisaged by this MOU in the six (6) months preceding the second anniversary of the Effective Date and may by mutual agreement in writing extend this MOU for additional periods on the same or varied understanding.

The termination of this MOU shall not affect the continued implementation of the programmes established under it prior to such termination.

Article 8 DISPUTE RESOLUTION

Any disputes arising under or in connection with this MOU which cannot be resolved by amicable discussions between the Parties shall be referred to the Deputy President (Research and Technology) of NUS and the Director of Research and Development of NCNU, or their respective nominees for resolution,

or may be submitted to some alternative dispute resolution mechanism as may be agreed in writing between the Parties.

Article 9
NON-BINDING NATURE OF THIS MOU

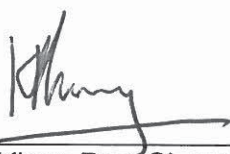
Despite the statements and obligations expressed herein and save for Articles 4, 5, 6, 7, 8, 9 and 10, this MOU is a non-binding expression of the current intentions of the Parties, and no Party will incur or be bound to any legal obligations or expense hereunder to the other Party until and unless definitive agreements have been negotiated, approved by the necessary management levels of each Party and executed and delivered by authorised representatives of the Parties. Articles 4, 5, 6, 7, 8, 9 and 10 shall survive the termination of this MOU and shall be legally enforceable in accordance with their terms in any court of competent jurisdiction.

Article 10
GOVERNING LAW

In the interpretation of this MOU, the laws of Hong Kong Special Administrative Region shall govern. The governing law of the agreements in relation to each programme of cooperation shall be decided on a case-by-case basis.

IN WITNESS whereof the Parties hereto have caused this MOU to be duly executed on the Effective Date.

SIGNED by for and on behalf of
**NATIONAL UNIVERSITY OF
SINGAPORE**



Professor Khoo Boo Cheong
Director, Temasek Laboratories
National University of Singapore

SIGNED by for and on behalf of
NATIONAL CHI NAN UNIVERSITY



Assoc. Professor Jung-Shan Lin
Chair, Dept. of Electrical Engineering
National Chi Nan University