

出國報告（出國類別：國際會議）

第二十屆人類腦成像組織年會與會報告

服務機關：國立中央大學

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派赴國家：德國

出國期間：2014/06/06-2014/06/14

報告日期：2014/08/6

摘要

我於 2014 年 6 月 8 日至 6 月 12 日出席 OHBM 的 2014 年度會議。這是一場相當令人振奮同時富有教育意涵的會議。會議中有許多優秀的學者針對他們的專長領域相互交流討論，研討會的內容非常豐富。我透過這場研討會，認識許多傑出的學者，並且向他們分享我的學術研究成果，在這些討論及研討會中令我學習到很多，並且獲得許多具有洞見的評論回饋，其中的一些想法將幫助我從不同的角度解釋個人研究的發現。

我在這次的研討會中，有機會觀察並評論其他研究者所發表的文章及國際學術界當前最新的研究。舉例而言，這次的主題演講是由 Professor Katrin Amunts 主講，他的演講非常地豐富。他發表了關於他們的研究團隊目前正在進行的大腦的 three-dimensional atlas 研究，他們運用高科技神經造影技術，獲得與提供了一個非常有用並詳細的 open-source atlas，這有助於神經學家的研究，包括我的研究。根據我在這場研討會學到的，我正計畫將他們的 brain atlas 融入我的研究，並使用這種更可靠的 brain atlas 來定位大腦的語言功能。

我也認識許多其他國家的博士後研究員，除了與對方分享研究經驗和研究方向外，我也嘗試和對方討論一些未來可行的研究方向。我認為，藉由彼此的經驗分享與腦力激盪，可使我產出高品質且更具有前瞻性的研究計畫。舉例來說，我目前與 Max Planck Institute 的博士後研究員正在討論一個跨語言相關的研究計畫；此外，和土耳其的認知實驗室，也正在研擬一些未來可行的研究計畫。

OHBM (Organization for Human Brain Mapping) 在腦神經研究相關的研討會和工作坊頗負盛名，因此對於研究認知功能與腦神經的研究人員，這實在是相當有助益的研討會。在此次的會議中，我接觸到相當多的主題，像是如何提高 fMRI 的解析度、如何將認知功能與腦區配對、新的腦神經研究技術。藉由參與這些研討會，不但使我更熟悉相關的技術與方法，也幫助我去思考未來可行的一些研究方向。

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壹、目的

OHBM 年會以提供專業腦造影技術的探索、大量對神經科學各個不同層面的演講及工作坊所聞名。由於我的研究旨在探索腦區運作時不同的腦造影模式，同時需要神經科學知識與腦造影技術兩種層面的需求，因此參與 OHBM 年會能給予我最大的幫助。特別是今年 OHBM 年會具有高解析度的磁振造影、腦區功能聯結等等最新的技術，讓我得以大開眼界習得新知。除此之外，在參與的過程中能與眾多世界上一樣進行語言神經學研究的科學家討論學習，更能砥礪我自己。

貳、過程

本次年會在德國漢堡 CCH 會議中心所舉辦，從六月八號至十二號，共計五天。除了第一天的行程是開幕式、演講及歡迎會之外，剩餘五天每天從早上八點到晚上五點或六點的工作坊、主題演講、專題討論、海報展示等等。今年共有七場 keynote speech，十六場 oral presentation（共八十個口頭報告）與將近五千篇的學術海報在本次會議中發表。會議第一天(6/8) 主要在介紹屆大會會議主軸，會議主席及邀請講者致詞。透過這個會議，會議主辦人希望可以傳達目前最近的認知神經科學理論，介紹最新的數學模型，研究技術與研究儀器，並且希望透過這樣子的學術會議達到不同領域，不同國家可以交流知識。

每天會議皆從早上八點開始。早上的會議共分為四個會議廳進行，由於四個會議是同時進行，所以無法同時參加。主題工作坊結束後，接下來的 Keynote Speech 題目為 toward ultra-high resolution models of the human brain，主講者是 Katrin Amunts 博士，她報告了目前在進行的工作成果，她們大大的改善了先前的腦圖，進而發展出來的 3D 高畫質腦圖技術。過去功能性磁造影由於技術上的限制大多只能研究大範圍的腦部活化與行為之間的關聯性，透過新的硬體技術，目前研究者已經可以觸及細胞層級的神經活化與行為之間的對應關係。Symposium: intracranial electrophysiology of resting state networks，著重在臨床的病人研究。透過需要進行腦外科手術治療癲癇的病人，獲得珍貴的腦內電波訊號（ECoG），這些資料可以讓我們瞭解人類大腦在處理語言與數字訊息相對應的活化狀況。

Morning workshop: Computational and imaging tools for targeting non-invasive brain stimulation，其中內容涵蓋最新的影像分析技術與相關的運算模型以及最近突起的腦刺激(brain stimulation)方法。會議的學術海報發表時間是在每天的下午十二點到兩點，這大概是整個會議期間，最能面對面與其他參加會議的老師學生互動的機會。透過與別人討論實驗，除了可以瞭解其他實驗室的研究主軸，也可以強化我們的邏輯思考，如何在最短的時間內，回應其他人的提問。

參、心得與建議

今年為學生第一次參加 OHBM 的年度會議，對於演講題目與海報的豐富性感到震撼，尤其在大會中發表的最新技術（包含結構性磁造影，功能性磁造影，擴散張量影像，磁共振頻譜分析，跨顱磁刺激與跨顱直流電刺激等）更令我感到眩目。這些新的工具與實驗參數，除了可以幫助我們從不同面向瞭解大腦與行為的相對應關係外，也成為延緩老化所產生的認知功能缺陷以及發展相關的神經與精神疾病的診斷與治療方式的重要鑰匙。另外，在聆聽國外學者報告最新開發的運算模型與分析方法時，我思考著如何將這些新的概念與技術導入目前的研究中。在參觀海報與國外學者和學生討論研究議題時，深深受到他們的學術熱情所感動。

這次的研討會讓我有極佳的機會，更進一步了解並學習最新的認知神經科學領域及語言學專業。藉由專題演講、工作坊及口頭會議，我了解了近年來在技術與科學等發展的最新成果。在專題演講方面，他們介紹了近幾年來在認知神經科學及語言學專業的成就。這次研討會也給了我很棒的机会去認識其他同領域的研究員，並與他們有進一步的學術交流。這樣的交流機會，也為未來的合作機會播下了希望的種子。

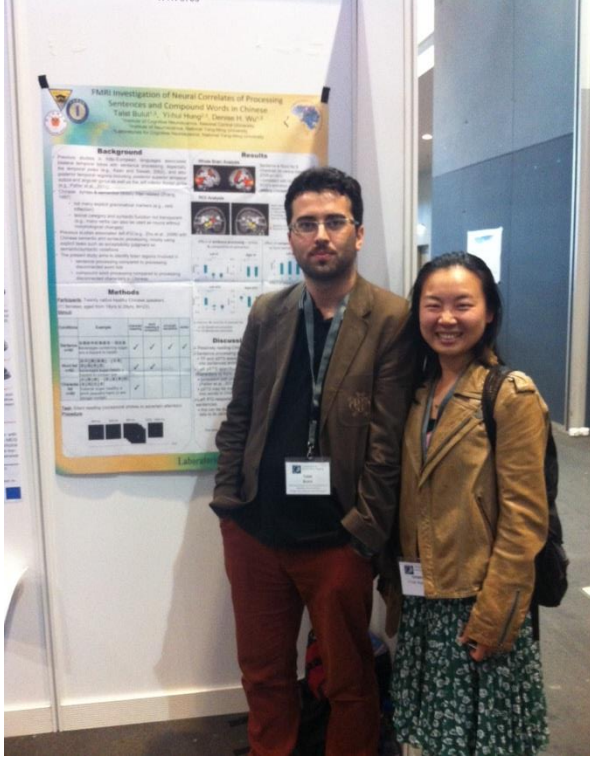
工作坊跟口頭簡報也讓我得到了非常多新的訊息，相當鼓舞人心。特別是「Mapping the Human Language Network: Development, Disorder and Culture-Specific Research」這個工作坊，對我特別的重要。主要的兩位演講者 Angela Friederici 和 Li-Hai Tan 皆是神經語言學這個專業領域的權威，分別專精研究德文及中文。Angela Friederici 介紹了他現在所做的研究，主要在探討兒童對於語法的處理歷程。Li-Hai Tan 則報告了他在中文方面的研究，特別是一些會把中文跟其他歐洲語言分開設置等方面的研究。在這個工作坊結束後，我極有榮幸的有這個機會與這位教授討論我正在進行的研究以及研究所發現的一些東西，並得到了非常有價值的回饋。

參加完海報會議，我也感到受益良多，許多研究都值得我參考與學習。我更深入的了解目前正在進行與可以發展的研究方向，像是可以證實我的研究結果的一些先前的研究，此外，我也獲得了一些學者的解釋和說明，這些精闢的分析和回饋使我大大受益，同時也成為我目前的研究發現的有效支持。

最後的總結，每年度的 OHBM 會議對我而言都非常有意義，這個研討會讓我有機會了解神經影像學與神經語言學等領域最新的研究方向與結果，並學習這兩個領域的最新技術及科學發展，也讓我在所學相關領域的知識有所增長。

肆、附錄

研討會中與個人研究成果海報合照。



左邊是我本人



Celebrating 20 Years

humanbrainmapping.org/OHBM2014

program

OHBM 2014 Annual Meeting

June 8-12

CCH-Congress Center Hamburg

Hamburg, Germany



EGI Sponsored Lunch Symposium

Tuesday, 10 June 2014

12:00 pm – 2:30 pm, hall G1

boxed lunch provided



"Geodesic Transcranial Electrical Neuromodulation (GTEN): Dense array methods for tDCS and tACS"

Speakers:

"Goals and Challenges of Geodesic Transcranial Electrical Neuromodulation"

–Don Tucker, PhD, Chief Executive Officer, Electrical Geodesics, Inc.

"Accurate Head Models for Transcranial Electrical Neuromodulation"

–Sergei Turovets, PhD, Scientist, Electrical Geodesics, Inc.

"Visualizing the Effects of Transcranial Electrical Neuromodulation on the Cortex"

–Erik Anderson, PhD, Scientist, Electrical Geodesics, Inc.

"Integrating GTEN with Dense Array EEG"

–Phan Luu, PhD, Chief Technology Officer, Electrical Geodesics, Inc.

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The revolution in ultra-fast MR imaging for neuroscience

Siemens Lunch Symposium, OHBM 2014

Wednesday, June 11th
12:00 p.m. – 2:30 p.m.
Hall 2, Congress Center
Hamburg

Lunch will be provided
for the first 200 attendees

Driving the revolution with leading-edge technologies

Keith Heberlein, PhD, Siemens Medical Solutions, USA

Simultaneous Multi-Slice Acquisition for Connectomic Applications and Beyond

Kawin Setsompop, PhD, Center for Biomedical Imaging, MGH/HST Athinoula A. Martinos

Multislice accelerated RESOLVE for time-efficient, high-resolution diffusion imaging

Robert Frost, PhD, FMRIB Centre, University of Oxford

Multiband techniques for functional and structural neuroimaging: Technical challenges, applications and future prospects

Essa Yacoub, PhD, CMRR, University of Minnesota

Answers for life.



welcome

Thank you for joining us in Hamburg, Germany to celebrate the Organization for Human Brain Mapping's 20th Annual Meeting! Many of you have attended this meeting over the past 20 years and can serve as testament to the tremendous growth and evolution of discoveries in the field of human brain mapping. OHBM's first meeting in Paris, France drew an attendance of 700. Today, in Hamburg, you will network with and learn alongside over 3,000 of your peers.

Eve Marder will kick off our meeting as Talairach Lecturer followed by outstanding Keynote Lectures by Katrin Amunts, Shihui Han, Hanna Damasio, James Haxby, Yaniv Assaf, Richard Frackowiak and John Duncan.

We have several suggestions to help you make the most of your Annual Meeting experience:

- Attend one of many educational courses offered on Sunday including: Advanced fMRI, Anatomy and its impact on structural and functional imaging, Introduction to Imaging Genetics, Pattern Recognition for Neuroimaging (or PR4NI), Brain Stimulation: Past, Present and Future, Electromagnetical Neuroimaging, Functional ASL: Perfusion based functional MRI using arterial spin labeling, Tools to parcellate the brain and its relation to function, A New Paradigm for Studying Drug Effects: Calibrated FMRI and Resting, MR Diffusion Imaging: Getting Your Measures Right, Neuroimaging Meta-Analysis and The Art and Pitfalls of fMRI Preprocessing.
- Learn from the scientific education offered throughout the four days of the meeting including three member-initiated symposia, one LOC symposium, oral sessions and morning workshops.
- Learn the results from this year's OHBM Hackathon and participate in the ongoing dialogue throughout the meeting. Learn more about the OHBM Hackathon.
- Engage in conversation with over 2,900 poster presenters sharing the latest research in a variety of disciplines.
- Visit with our knowledgeable exhibitors to learn about the latest products and services available for the brain mapping community.
- Take time to build new relationships during one of several networking events, including the Welcome Reception on Sunday; Club Night on Wednesday at Edelfettwerk; and poster wine/beer receptions being held on Tuesday and Thursday after programming.
- During and after the meeting, utilize OHBM resources including:
 - The Annual Meeting mobile app.
 - **The Onsite Career Resource room** where job seekers can connect with employers Onsite Career Resource.
 - **The Online Library**, which contains program presentations from this and past OHBM meetings.
 - **E-Posters**, which contain hundreds of posters that you may have missed.

Don't miss the Opening Ceremonies on Sunday, June 8th where OHBM will present its first-ever OHBM Glass Brain Award! This award was established to recognize and reward a lifetime of achievement by a gifted and talented individual using neuroimaging to discover original and influential findings to the organization of the human brain. OHBM is excited to add this prestigious award to this year's Annual Meeting and to future meetings.

We hope you find the 20th Annual Meeting of the Organization for Human Brain Mapping memorable and scientifically exciting. We thank each of you for joining us here in Hamburg and look forward to your involvement.

Sincerely,

Stephen Smith
Chair, Council

Pedro Valdes Sosa
Chair, Program Committee

Arno Villringer & Christian Buechel
Co-Chairs, Local Organizing Committee

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Sunday, June 8

EDUCATIONAL COURSES

8:00 – 17:00

Full Day CoursesAdvanced fMRI Course
*Hall 1*Anatomy and its impact on
structural and functional imaging
*Hall A*Introduction to Imaging Genetics
*Hall B*Pattern Recognition for
NeuroImaging (or PR4NI)
Hall C

8:00 – 12:00

Morning CoursesBrain Stimulation: Past,
Present and Future
*Hall D*Electromagnetical Neuroimaging
*Hall E*Functional ASL: Perfusion based
functional MRI using arterial spin labeling
*Hall F*Tools to parcellate the brain and
its relation to function
Hall 8

13:00 – 17:00

Afternoon CoursesA New Paradigm for
Studying Drug Effects:
Calibrated fMRI and Resting
*Hall D*MR Diffusion Imaging:
Getting Your Measures Right
*Hall E*Neuroimaging Meta-Analysis
*Hall F*The Art and Pitfalls of fMRI
Preprocessing
Hall 8

17:30 – 19:00

**Opening Ceremonies and
Talaïrach Lecture***Hall 1***Eve Marder**Variability, Robustness and
Compensation in Neurons and Networks

19:00 – 21:00

Welcome Reception*Hall 3, 4 and Ground Floor Foyer*

Monday, June 9

8:00 – 9:15

MORNING WORKSHOPSA brave new world? Ethical considerations
for individual assessments based on
advanced neuroimaging
*Hall G1*Methodological Advances in
Lesion Symptom Mapping
*Hall 1*Cerebro-cerebellar interplay and cognition
*Hall 2*The predictive power of neuroimaging
Hall G2

15 minute break

9:30 – 10:15

Keynote Lecturer: Katrin Amunts"Towards ultra-high resolution
models of the human brain"
Hall 1

10:30 – 11:45

LOC SymposiumBrain Machine Interfaces: Foundations
and Perspectives
Hall 1

11:45 – 12:45

Lunch

12:45 – 14:45

Poster Session*Hall H*

14:45 – 16:00

Symposium:Intracranial Electrophysiology of
Resting State Networks
Hall 1

16:15 – 17:00

Keynote Lecture: Shihui Han"Racial in-group favoritism in emotion
understanding and sharing:
Neuroimaging approach"
Hall 1

15 minute break

17:15 – 18:30

Oral SessionsO-M1: Multivariate Modelling and
Machine Learning
*Hall 8*O-M2: Imaging Physiology
*Hall 2*O-M3: Learning and Memory
*Hall G1*O-M4: Psychiatric disorders
*Hall G2*O-M5: Lifespan Development
Hall 1

Tuesday, June 10

8:00 – 9:15

MORNING WORKSHOPSBiophysics, acquisition methods and
interpretation of laminar specific
functional MRI
*Hall 2*Is there a continued role for PET in
studies of normal human cognition?
*Hall G1*Computational and imaging tools for
targeting non-invasive brain stimulation
*Hall 1*Imaging the human brainstem in
VIVO: techniques and applications
Hall G2

15 minute break

9:30 – 10:15

Keynote Lecturer: Hanna Damasio"Visualizing Human Brain Anatomy"
Hall 1

10:30 – 11:45

Oral SessionsO-T1: Neuroanatomy
*Hall 1*O-T2: Imaging Methods
*Hall 2*O-T3: Higher Cognitive Functions
*Hall G1*O-T4: Genetics
Hall G2

11:45 – 12:45

Lunch

12:45 – 14:45

Poster Session*Hall H*

14:45 – 16:00

Symposium:The Many Faces of "Top-down":
An Integrative Perspective
Hall 1

15 minute break

16:15 – 17:00

Keynote Lecture: James Haxby"A common high-dimensional linear
model of representational spaces
in human cortex"
Hall 1

17:00 – 18:30

Poster Reception*Hall H*

program-at-a-glance

Wednesday, June 11

8:00 – 9:15

MORNING WORKSHOPS

What Can We Learn from Integrating Multimodal Neuroimaging Data?

Hall G2

The hemodynamic response and neurovascular coupling:
from sources to measures to models

Hall G1

Mobile Brain/Body Imaging (MoBI) –
New directions in human neuroscience

Hall 2

Advances in neuroscience and clinical
research using ultra-high speed fMRI

Hall 1

15 minute break

9:30 – 10:15

Keynote Lecture: Yaniv Assaf

“The Role of Neuroimaging in Redefining Neuroplasticity
Beyond The Synapse”

Hall 1

15 minute break

10:30 – 11:45

Oral Sessions

O-W1: Brain Stimulation

Hall 1

O-W2: Resting-State Networks and Functional Parcellation

Hall 2

O-W3: Perception and Attention

Hall G1

O-W4: Developmental Disorders

Hall G2

11:45 – 12:45

Lunch

12:45 – 14:45

Poster Session

Hall H

14:45 – 16:00

Symposium:

Novel uses of natural viewing paradigms in EEG, fMRI and fcMRI

Hall 1

15 minute break

16:15 – 17:00

Keynote Lecture: Richard Frackowiak

“The Role of Neuroimaging in the Human Brain Project”

Hall 1

15 minute break

17:15 – 18:15

Town Hall Meeting

Hall 1

Transition Time

20:30 – 2:00

Club Night

Edelfettwerk

Thursday, June 12

8:00 – 9:15

MORNING WORKSHOPS

The Dys-Connectome:

Effects of focal injury on the brain's
functional organization and behavior

Hall G1

The dynamic human brain

Hall 2

Using neuroimaging to develop novel
biomarkers: A case study of
“big data” in Huntington's disease

Hall G2

Mapping the Human Language Network:

Development, Disorder and
Culture-Specific Research

Hall 1

15 minute break

9:30 – 10:15

Keynote Lecture: John Duncan

“A core brain system in assembly
of cognitive episodes”

Hall 1

15 minute break

10:30 – 11:45

Oral Sessions

O-TH1: Social Neuroscience

Hall 1

O-TH2: Modeling Electrophysiology

Hall 2

O-TH3: Emotion and Motivation

Hall G1

O-TH4: Neurologic Disorders

Hall G2

11:45 – 12:45

Lunch

12:45 – 14:45

Poster Session

Hall H

14:45 – 16:00

**Closing Comments and Meeting Highlights –
Susan Bookheimer**

Hall 1

16:00 – 17:30

Farewell Poster Reception

Hall H