人因會訊

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中華民國人因工程學會 發行

本 期 要 目

【2002 年中華民國人因工程學會年會】

一、會議日期: 民國 91 年 3 月 9 日

二、會議地點: 國立清華大學工程一館

三、會議內容:

1. 會務報告及議案討論

2. 專題演講

    (1) "The Discipline of Ergonomics: Current Challenges and Future Opportunities"

        Dr. Waldemar Karwowski

        President of International Ergonomics Association

    (2) "Humans Are Eager to Pursue New Technology Horizones: The Essence of Solutions to Problems in Occupational Ergonomics"

        Dr. Masaharu Kumashiro

        President of The Pan-Pacific Council on Occupational Ergonomics

3. 研究成果發表

四、主辦單位: 中華民國人因工程學會、國立清華大學

五、協辦單位: 行政院國家科學委員會、行政院勞工委員會勞工安全衛生研究所

【國外論文徵稿】

CALL FOR PAPERS
BRMIC Special Issue on Eye Movement Research Methods
(http://www.vr.clemson.edu/eyetracking/etra/2002/brmic.html)

Under the joint auspices of ACM ETRA (Association for Computing Machinery's Eye Tracking Research and Applications) and BRMIC (Behavior Research Methods, Instruments, and Computers), the November 2002, issue of BRMIC will feature articles that address research methods and instrumentation related to the study of oculomotor behavior. Papers are welcomed

from a variety of areas (such as Computer Science and Human-Computer Interaction; Cognitive and Social Psychology; Ergonomics; Cognitive Neuroscience; and Applied Psychology).

All interested authors are invited to submit articles for review, via a PDF file attachment to an e-mail to brmic@hamilton.edu., prepared according to the Information for Contributors in volume 33(3) of BRMIC or at (http://www.psychonomic.org/brmed.htm)

Contributions should be conspicuously marked "For the Eye Tracking issue" and be sent to the editorial office no later than **March 15, 2002**. Questions about submission content and format may be addressed to the General Chair of ETRA, Andrew T. Duchowski (andrewd@cs.clemson.edu) or to the editor of BRMIC, Jonathan Vaughan (brmic@hamilton.edu).

CALL FOR PAPERS

ACM Transactions on Internet Technology, Special Issue on Machine Learning for the Internet

Machine learning methods are becoming increasingly important for the development of several internet related technologies. Tasks such as intelligent searching, organizing, retrieving, and filtering information on the Web are extremely challenging and still much too easy for humans than they are for computers, except that humans are unable to scale up with the enormous amount of available data. Explicit coding of rules in this domain is typically very hard, and even if possible, would require exceptional coordination efforts. In particular, the fast dynamics of the information available on the Internet requires new approaches for indexing. The organization of information in Internet portals is becoming hardly manageable by humans. The users' surfing of the Internet can be made easier by personalized tools like search engines optimized for a specific Web community or even for the single user. For example, finding relevant documents by querying a search engine with a set of keywords may be difficult unless a proper ranking scheme is used to order the results. In this case, techniques based on user profiles, on topic selection and on the use of the Web topology can help in defining authoritative sources of information with respect to the given query and interests.

Searching, organizing and retrieving information from the Web poses new issues that can be effectively tackled by applying machine learning techniques. Learning algorithms can be used to devise new tools which improve the accessibility to the information available on the Web. Learning is particularly useful to automate those tasks in which it is quite easy to collect examples while coding a set of explicit rules is impractical. For example, the fast dynamics of the Internet can be faced by designing new specialized search tools which cover only the parts of the Web related to a

given topic. These search tools focus their exploration only on the portion of the Web which contains the information relevant for this topic. Moreover, learning-based search >tools can feature a very high precision in retrieving information and can reduce the need for human efforts for many repetitive tasks (like organizing documents in Web directories).

Beside accessing information, understanding and characterizing web structure and usage is essential for future development and organization of new tools and services. In spite of several recent efforts in measuring and producing mathematical models of web connectivity,dynamics, and usage, no definitive answers have emerged and learning may play a fundamental role for advancing our understanding in this field.

Submissions

Authors are requested to send an intention of submission (with authors, title and abstract) as an email message in plain text to acm-toit@dsi.unifi.it by **May 1, 2002**. Then, papers must be submitted in electronic format as an attachment to the same email address before **May 15, 2002**. Preferred formats are PDF and PostScript (compressed with gzip or zip). Manuscripts must not exceed 50 single-column, double-spaced pages (including figures and tables) and must be written in English and set in 10 or 11 point font. Please do not send papers directly to guest editors' email addresses.

Important Dates

Intention of submission: May 1, 2002
Submission deadline: May 15, 2002
Notification: August 1, 2002

Guest editors

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【主題專欄: 從岳飛的郾城大捷談到宋代人體計測(二)】

饒培倫

上次我們從宋金對抗的例子作爲介紹宋代人體計測的起點，這次我們要接著討論宋軍步兵對抗騎兵的主要武器，包括長槍、大刀大斧、強弓硬弩、及沉重的步人甲等。

若要研究宋代的兵器，絕不能不提武經總要一書。宋仁宗任命曾公亮與丁度編撰這一部軍事百科全書，全書共分四十卷，分成前後兩集，前集前十五卷爲歷代軍事制度、後五卷爲宋代邊防；後集前十五卷爲歷代戰史、後五卷爲軍事相關之天文地理。書中對於各式兵器式樣的設計、製造、及使用方法都有簡要說明及圖樣。

武經總要提供了宋代軍事科技的面貌，同時也是宋代製造武器戰具的依據標準，以書中的記錄爲準，宋代的武器作坊大量生產製造了可供百萬人部隊所使用的裝備。其中各式裝備的設計已考慮到使用者-宋軍士卒的身材與體力，甚至已建立某些明確的重量或長度的標準，以防止裝備超出人力的負荷讓士兵的戰力無法充份發揮，這種不一味追求器械鋒利而忽視使用器械的操作人員的觀念，或許可視爲人因工程應用的一大步。

長槍

武經總要前集卷十攻城法一節中介紹了幾種攻城用槍: 短刃鎗、短錐槍、抓槍、蒺藜槍、及拐槍，長度約在 200cm 至 240cm 不等。卷十二守城一節中介紹了城防所用之槍: 拐突鎗、抓鎗、及拐刃鎗，長度約在 800cm 左右。居高臨下的守軍使用的守城槍長度必須相當長，應比一般步騎兵用槍長很多。卷十三器圖一節又介紹雙鉤槍、單鉤槍、及環子槍等騎兵用槍，及素木槍、鵶項槍、錐槍、梭槍爲步兵用槍，均無長度之記載。

槍的長度一般而言比一個人的身高長一些。根據日人篠田耕一的考據，在周禮考工記中制定以長度不超過使槍者身長之三倍，明末吳殳所著之手臂錄中也有三公尺至五公尺不等的記錄，篠田耕一綜合吳殳的記載，指出長度約在 310 公分，重量則在 4.8 公斤左右最爲理想。就前述攻城槍的長度比較，宋代步兵用槍的長度可能較明朝來得短。

大刀及大斧

宋軍最爲金軍所懼的武器便是大刀與大斧，是爲重步兵對抗重裝甲騎兵的重要主戰武

器，其與手刀手斧的差別在於握把的長度，如武經總要前集卷十三器圖一節所載，手刀之”柄短如劍”，不似大刀大斧的刀桿長度約在刀長的兩倍左右。只要想像三國時名將關羽所使用的大刀便不難得知其模樣，不過一般小說野史描述關羽使一把八十二斤青龍偃月刀，其實在三國時並沒有偃月刀，宋朝時偃月刀才普及。武經總要前集卷十三器圖一節介紹了大斧、棹刀、屈刀、及筆刀，不過也沒有長度之記載。

據日人篠田耕一指出大刀的長度約在二公尺至三公尺間，重量多在二十公斤上下。至於大斧的長度與大刀相仿，重量則在五公斤上下。前次所提大刀及大斧是南宋軍對抗金軍時所依賴的武器，近來電視所播出的「成吉思汗」連續劇集中常見金軍的武器便是此處所討論的宋軍大刀，片中金軍以大刀爲主戰武器對抗蒙古騎兵。

強弓硬弩

面對機動力高、速度快的騎兵，使用弓弩的步兵能夠在遠距離殺傷敵人，彌補機動及速度的弱點，對宋軍步兵而言，弓弩的應用的確非常重要，而宋代也是弓弩在被火藥遠射兵器取代前最具影響力的時代。武經總要前集卷十三器圖一節一開始便介紹了個人使用的弓弩:黃樺弓、黑漆弓、白樺弓、麻背弓、雌黃樺稍弩、黃樺弩、白樺弩、跳鐙弩、及木弩等。在宋史兵志中更提及了威力強大的神臂弓，事實上是弩，射程約 370m。之後南宋名將韓世忠又發明了克敵弓，也是一種單兵操作的弩。

步人甲

步人甲是宋代重裝步兵的防護裝備，在武經總要前集卷十三器圖一節的最後介紹。作爲戰鬥護具也擔負量度任務的鎧甲，在宋仁宗時已有定制。步人甲是宋代重裝步兵的防護裝備，在武經總要前集卷十三器圖一節的最後介紹。

整套裝甲共 1825 張甲葉，依據高宗之詔命規定不得超過約 30 公斤，避免重裝步兵的負荷過重。若再加上刀斧或槍劍等兵器及其他裝備，宋代重裝步兵之負荷會超過 35 公斤，可能達 40 公斤以上。這道詔命可說是一項武器裝備的中央標準，而其建立之原因在考慮到人類的體能限制，雖然史書並未記載其建立依據，但從兩宋與遼金騎兵交戰史實觀之，此一人因標準應爲大小實戰演練經驗之累積。

從以上幾種兵器的介紹中不難發現，以人爲本的精神逐漸成爲宋代軍事科技的一部分，而完整的人因工程應用制度也呼之欲出了。下次有機會我們將接著討論宋代的人體計測，從

身高、拉強弓硬弩、體型、到年齡等標準，是爲一套完整的制度。

【相關網址】

- Good ergonomics is good economics: http://hfes.org/publications/goodergogoodeco.html (Hal Hendrick 所著，由 Human Factors and Ergonomics Society 提供之免費下載網址。)

- UCLA Ergonomics: http://ergonomics.ucla.edu/ (UCLA 所建立的網站，內容包括 Office Ergonomic, Laboratory Ergonomics, Back Safety, WMSD's and RSI's 等資訊，還有線上檢核表及諮詢服務。)

- CU Ergo: http://ergo.human.cornell.edu/ (Cornell Human Factors and Ergonomics Research Group (CHFERG) 的網站，介紹了他們的研究及教學，還有人因相關的新聞及工作機會。)

- ErgoStore Online: http://www.ergostoreonline.com/ (線上購物網站，提供人因相關產品與服務，產品圖片爲數不少。)

- HCI Index: http://degraaff.org/hci/ (由 Hans de Graaff 所主持之網站，搜集了有關 Human-Computer Interaction 的重要訊息、書籍、期刊、資料庫、組織、訓練課程等資訊，內容相當充實並且時常更新。)

【徵求研究成果】

爲加強會員溝通管道並充實會訊內容，會訊徵求學生課程報告、專題報告、研究報告、其他人因相關研究的成果題目。本會收到稿件後，將刊登於本會會訊中，並考慮放置於學會網頁，以供本會會員之參考。

- 學生課程報告：以在學學生、大學部及研究所的人因相關研究主題
- 專題報告：以企業研究、發展人因相關專題
- 研究報告：國內外人因相關研究
- 其他人因相關研究報告

回覆請註明作者、指導老師、聯絡方式。來稿請傳至：peiluen@cycu.edu.tw。

【研討會訊息】

- **ETRA conference 2nd bi-ennial Eye Tracking Research & Applications Symposium, 25-27 March 2002, New Orleans, LA, USA.**
  http://www.vr.clemson.edu/eyetracking/etra/2002/program/. Conference registration is now open at: https://campus.acm.org/register/etra02/

- DIS2002 - DESIGNING INTERACTIVE SYSTEMS, June 25-28, 2002, London, UK. A venue for serious reflection on the practice of designing interactive systems, exploring the aesthetic, social and cultural dimensions of new technologies. http://www.sigchi.org/DIS2002/.

- 24th Annual Meeting of the Cognitive Science Society (CogSci2002), August 8 - 10, 2002, George Mason University, Fairfax, Virginia, USA. CogSci2002 is the annual meeting of the premier society for basic and applied cognitive science research. Six-page papers or Publication-Based Submissions will be packaged together in special Targeted Symposium paper or poster sessions. See website for more details. (http://www.hfac.gmu.edu/~cogsci/)

- **HFES 46th Annual Meeting, September 30 - October 4, 2002, Baltimore, Maryland, USA.**
  Proposals of all presentation types (lecture, panel, symposium, demonstration, workshop, seminar, alternative format, debate, poster, etc.) are due FEBRUARY 20, 2002. Acceptance notification will be sent in mid-April. Final papers for the proceedings CD-ROM will be due at HFES on June 24, 2002. Email **HFES headquarters** or contact the staff at P.O. Box 1369, Santa Monica, CA 90406-1369 USA; 310/394-1811, fax 310/394-2410, to receive a copy of the Call for Proposals. The Call for Proposals will also be available at the **HFES Web site**.

- **IEA 2003, August 24-29, 2003, in Seoul Korea.** Abstracts are invited for the XVth Triennial Congress of the International Ergonomics Association, to be held August 24-29, 2003, in Seoul Korea. Areas of interests include cognitive ergonomics and human-computer interaction, complex systems and human performance, and macroergonomics. Abstracts are due October 31, 2002. Contact Gangnam P.O. Box 467, Seoul, 135-146, Korea:+82-2-552-8350, fax+82-2-552-8325; info@iea2003.org, http://www.iea2003.org