

The 14th International Conference on Automation and Computing

## **ICAC 2008 Conference**

Saturday, 6th September 2008, Brunel University,

**St. John's Building**, Department of Information Systems and Computing

Kingston Lane, Uxbridge UB8 3PH, UK

For directions and maps: <http://www.brunel.ac.uk/visitors/>

### **Presentation**

A slot of 15 minutes is allocated to each paper, which includes presentation, questioning and answers. Normal data projectors are available in all rooms for power point presentations.

# Conference Programme

**09:30 - 10:30**      **Registration (St. John's Building, Foyer)**

**10:30 - 11:00**      **Opening Session    (SJ050: St. John's Building)**

10:30 - 10:35      Welcome speech by Conference Chairman (Zidong Wang)

10:35 - 10:40      Paper review and best paper award by Program Chairman (Sijing Zhang and Dayou Li)

10:40 - 10:50      Guest speech by Officer in Chinese Embassy (Zongming Zhang, to be confirmed)

10:50 - 11:00      Annual briefing by CACSUK President (Hongnian Yu)

**11:00-12:00    Keynote speech: (SJ050, St. John's Building)**

“On plant-wide optimal control for industrial processes”

**Professor Tianyou Chai**

Member of Chinese Engineering Academy, Northeast University, China

## Parallel Paper Sessions

12:00-13:00 Lunch	12:00-13:00 Lunch	12:00-13:00 Lunch
Seminar Room: SJ004	Seminar Room: SJ008	Seminar Room: SJ050
<p><b>Session 1: Control Theory and Applications</b> <i>Chairs: Guoping Liu and Jianbo Yang</i></p> <p>13:00-13:15 Set-Membership Filtering for Discrete-Time Systems with Nonlinear Equality Constraints <i>Yongmin Li and Fuwen Yang, Brunel University, UK</i></p> <p>13:15-13:30 Further Results on Robust Stability of Discrete-Time Systems with Time-Varying Delay <i>Jian Sun, G.P. Liu and D.Rees, University of Glamorgan, UK</i> <i>Jie Chen, Beijing Institute of Technology, China</i></p> <p>13:30-13:45 A Rapid Prototyping Platform for UAV Research <i>Cunjia Liu, Jonathan Clarke and Wen-Hua Chen, Loughborough University, UK</i></p> <p>13:45-14:00 A Prototype Online Group Clinical Decision Support System with Belief Rule-base Inference Methodology. <i>Guilan Kong, Dong-Ling Xu and Jian-Bo Yang, The University of Manchester, UK</i></p>	<p><b>Session 2: Networks and Communications</b> <i>Chairs: Geyong Min and Alison Carrington</i></p> <p>13:00-13:15 Lifetime Guarantee Sink Node Positioning in Wireless Sensor Networks <i>Md Zaid Ahmad and Shuanghua Yang, Loughborough University, UK</i></p> <p>13:15-13:30 A Decentralised Low-power ZigBee-based Localisation Approach <i>Tareq Ali Alhmiedat and Shuanghua Yang, Loughborough University, UK</i></p> <p>13:30-13:45 Dynamic Cluster Head for Lifetime Efficiency in WSN <i>Hesham Abusaimeh and Shuanghua Yang, Loughborough University, UK</i></p> <p>13:45-14:00 Overview of Wireless Networked Control Systems over Mobile Ad-hoc Network <i>M Shahidul Hasan, Hongnian Yu and Alison Carrington, Staffordshire University, UK</i></p>	<p><b>Session 3: Data Processing</b> <i>Chairs: Wei Huang and Wenyan Wu</i></p> <p>13:00-13:15 OLAP Model System for Reporting Use <i>Hao Li and Joan Lu, University of Huddersfield, UK</i> <i>Hao Li, Yu Liu and Shaowen Yao, Yunnan University, China</i></p> <p>13:15-13:30 A Bayesian Network Model with a Probability Generation Approach to Evaluate Risks in New Product Development Project <i>Dawei Tang, Dongling Xu and Jianbo Yang, The University of Manchester, UK</i> <i>Kwai-Sang Chin and Shui-Yee Wong, City University of Hong Kong, China</i></p> <p>13:30-13:45 The Three Prisoners Problem Revisited: issues in the use of Bayesian networks for security applications <i>J H Pickering and Z Xu, University of Huddersfield, UK</i></p> <p>13:45-14:00 Stream-Based Data Filtering for</p>

<p>14:00-14:15 Stability of Networked Control Systems with Random Buffer Capacity <i>Dongxiao Wu and Jun Wu, Zhejiang University, China</i> <i>Sheng Chen, University of Southampton, UK</i></p> <p>14:15-14:30 Tribrid Energy Sources for Electric Scooter Vehicle System <i>Kary Thanapalan, Guo-Ping Liu, Jonathan Williams, Bo Wang and David Rees, University of Glamorgan, UK</i></p> <p>14:30-14:45 Evolutionary Potential Field Method for Multi-robot Flocking <i>Lei Liu, Shuanghua Yang, Graham Watson and Brian Ford, Loughborough University, UK</i> <i>Yongji Wang, Huazhong University of Science and Technology, China</i></p> <p>14:45-15:30 The Research of Fuzzy Logic based Human-robot Cooperation <i>Beisheng Liu, Carsten Maple and Yong Yue, University of Bedfordshire, UK</i> <i>Daming Jiang, Beijing Jiaotong University, China</i></p>	<p>14:00-14:15 Optimising Wireless Network Control System Traffic - Using Queuing Theory <i>Alison Carrington, Chris Harding and Hongnian Yu, Staffordshire University, UK</i></p> <p>14:15-14:30 Design and Realization of a PS/2 Keyboard Interface in Embedded System <i>Yong Yin, Cheng Li, Zude Zhou and Quan Liu, Wuhan University of Technology, China</i> <i>Shen Guo, Xing Luo and Jihong Wang, University of Birmingham, UK</i></p> <p>14:30-14:45 Analysis of the Influence of Pulse Derivatives on the Power Spectrum of Ultra-Wideband Signal <i>Dong Feng, Sabir Ghauri and Quan Zhu, University of the West of England, UK</i></p> <p>14:45-15:30 Content Based Image Retrieval: A Review <i>Nasullah Khalid Alham and Maozhen Li, Brunel University, UK</i></p>	<p>Accelerating Metrological Data Characterization <i>Yang Su, Zhijie Xu and Xiangqian Jiang, University of Huddersfield, UK</i> <i>Yang Su, Xi An University of Science &amp; Technology, China</i></p> <p>14:00-14:15 Impedimetric Discrimination of Cell Types by Using Spectrogram Analysis <i>Zhiyan Wang, Janice Kiely, Mokhtar Nibouche and Richard Luxton, University of the West of England, UK</i></p> <p>14:15-14:30 The Effects of Multiple Classifiers on Feature Selection <i>Kyriacos A. Chrysostomou, Sherry Y Chen and Xiaohui Liu, Brunel University, UK</i></p> <p>14:30-14:45 A Survey of Fuzzy Logic on Handling Lexical Vagueness <i>Xiao Guo, Dayou Li, Gordon Clapworthy, Norma Pritchett, University of Bedfordshire, UK</i></p> <p>14:45-15:30 HCCI Engine Modelling with Parameter Identification Using Genetic Algorithms <i>N Jia and K Nuttall, University of Liverpool, UK</i> <i>J L Wei, J Wang, H Xu and M L Wyszynski, University of Birmingham, UK</i></p>
<b>15:00-15:30 Tea Break</b>	<b>15:00-15:30 Tea Break</b>	<b>15:00-15:30 Tea Break</b>

Seminar Room: SJ004	Seminar Room: SJ008	Seminar Room: SJ050
<p><b>Session 4: Software Engineering and Applications</b>  <i>Chairs: Hongji Yang and Huosheng Hu</i></p> <p>15:30-15:45 MDA-based Development of Music-Learning System  <i>Yingchun Tian, Hongji Yang and Leigh Landy, De Montfort University, UK</i></p> <p>15:45-16:00 Software Product Lines - Defect Prevention  <i>Eman AlAyyat and Xiaochun Cheng, Middlesex University, UK</i></p> <p>16:00-16:15 Modeling Concept Sketch Based on Context  <i>Cuixia Ma, Institute of Software, Chinese Academy of Sciences, China</i>  <i>Shengfeng Qin, Brunel University, UK</i></p> <p>16:15-16:30 Evaluating Websites Using a Practical Quality Model  <i>Zihou Zhao, Hong Zhou and Hongji Yang, De Montfort University, UK</i></p> <p>16:30-16:45 "Hidden" Semiosis: Trusted Security Mediators  <i>Tim French, University of Bedfordshire, UK</i>  <i>Kecheng Liu, University of Reading, UK</i></p> <p>16:45-17:00 A Bio-inspired Scheduling Heuristic for Personal Mobile Grids  <i>H. Kurdi, M. Li and H. S. Al-Raweshidy, Brunel University, UK</i></p>	<p><b>Session 5: Communications and Imaging</b>  <i>Chairs: Hongnian Yu and Shuanghua Yang</i></p> <p>15:30-15:45 Synchronous Bandwidth Allocation with the Timed Token MAC Protocol  <i>Jun Wang, Sijing Zhang and Carsten Maple, University of Bedfordshire, UK</i></p> <p>15:45-16:00 Congestion Control for Internet Media Traffic  <i>Mohammad A. Talaat, Information Technology Institute, Egypt</i>  <i>Magdy A Koutb and Hoda S Sorour, University of Menofia, Egypt</i></p> <p>16:00-16:15 A Tabu Search and Automatic Planning Tool for Mobile WiMax Radio Networking Planning  <i>Xiaoyan Lin, Jie Zhang and Sijing Zhang, University of Bedfordshire, UK</i></p> <p>16:15-16:30 Capacity and Coverage Dimensioning for 3G Radio Access Network Planning  <i>Peng Wang, Jie Zhang, Carsten Maple and Sijing Zhang, University of Bedfordshire, UK</i></p> <p>16:30-16:45 Investigation on Filtering cDNA Microarray Image Based Multi-View Analysis</p>	<p><b>Session 6: Supply Chains, Management, Energy and Environment</b>  <i>Chairs: Yang Dai and Xun Chen</i></p> <p>15:30-15:45 The Technological Preference of the Hub Company in a Supply Network  <i>Yang Dai and Zhiyong Zhang, Coventry University, UK</i></p> <p>15:45-16:00 A Model for Cooperative Design Based on Multi-Agent System  <i>Hua Chen and Yi Guo, Xi'an Technological University, China</i></p> <p>16:00-16:15 A Generic Conceptual Model of Risk Evaluation in Multi-agent Based Collaborative Design  <i>J. Ruan and S. F. Qin, Brunel University, UK</i></p> <p>16:15-16:30 Implementation of a Category Theory-Based GPS Knowledge System for Product Design  <i>Yuanping Xu, Zhijie Xu and Xiangqian Jiang, University of Huddersfield, UK</i></p> <p>16:30-16:45 State of Health Monitoring of Lead-acid Batteries  <i>Shen Guo, Stuart Hillmansen, Yong Yin and Jihong</i></p>

<p>17:00-17:15 Study on SOA-Orient WebGIS Framework <i>Hao Li and Joan Lu, University of Huddersfield, UK</i> <i>Hao Li, Binjing Cai and Shaowen Yao, Yunnan University, China</i></p> <p>17:15-17:30 Low-Resolution Human Detection and Gait Recognition in Natural Scenes <i>Andrzej Ruta, Yongmin Li and Xiaohui Liu, Brunel University, UK</i></p>	<p><i>Bachar Zineddin, Zidong Wang, Karl Fraser and Xiaohui Liu, Brunel University, UK</i></p> <p>16:45-17:00 A Review of Medical Image Annotation <i>Zhiyong Zhang, Joan Lu and Jim Yip, University of Huddersfield, UK</i></p> <p>17:00-17:15 RFID-based Hybrid Camera Tracking in Virtual Studio <i>Po Yang, Wenyan Wu, M Moniri and Claude C. Chibelushi, Staffordshire University, UK</i></p> <p>17:15-17:30 Integration of Real and Virtual Light Sources in Augmented Reality Worlds <i>M Bingham, D Taylor, D Gledhill and Z Xu, University of Huddersfield, UK</i></p>	<p><i>Wang, University of Birmingham, UK</i></p> <p>16:45-17:00 Study of a Pneumatic System for Energy Saving by Recycling Exhaust Compressed Air <i>Leonid Shpanin, Xing Luo, Nan Jia, Yong Yin and Jihong Wang, University of Birmingham, UK</i></p> <p>17:00-17:15 Mobile RFID Technology and Knowledge Hub in Recycling and Logistic Support in Environmental Disposal of Waste Tyres <i>A. S. Atkins, L. Zhang and H Yu, Staffordshire University, UK</i></p> <p>17:15-17:30 Modelling and Performance Analysis of Torus Networks in the Presence of Bursty Traffic and Hot Spot Destinations <i>Yulei Wu and Geyong Min, University of Bradford, UK</i> <i>Mohamed Ould-Khaoua, University of Glasgow, UK</i> <i>Hao Yin, Tsinghua University, China</i></p>
<b>17:30-18:00</b> <b>Committee meeting</b>	<b>17:30-18:00</b> <b>Committee meeting</b>	<b>17:30-18:00</b> <b>Committee meeting</b>
<b>18:00-20:00</b> <b>Conference dinner</b>	<b>18:00-20:00</b> <b>Conference dinner</b>	<b>18:00-20:00</b> <b>Conference dinner</b>

## CONFERENCE FEE

The conference registration fee will be £70 for staff and £30 for students. This will cover attendance, the conference lunch, the conference banquet, refreshments, and a copy of the conference proceedings. The registration fee will be only accepted at the registration desk on the conference day.

## Recommended Hotels:

### Local Hotels and Guest Houses

BARNARDS LODGE 3/4 Western Parade Western Avenue Hillingdon Middlesex Tel:01895 230724	Single: 11 Double: 3 Twin: 2	£35.00 £45.00 £50.00	English Breakfast £6.50 Continental Breakfast £3.50
DEBDEN GUEST HOUSE 42 Field Heath Road Hillingdon, Middlesex Tel: 01895 253912	Single: 2 Double: 2 Family: 2  Triple	£40.00 £50.00 £60.00  £70.00	Breakfast Included
LYTTLETON LODGE Station Road, Cowley Uxbridge, Middlesex Tel: 01895 254970	Single: 4 Double: 3 Twin Rate 4 Ensuite Single 4	£35.00 £55.00 £55.00 £45.00	Breakfast Included

<p>MASTER BREWER HOTEL Freezeland Way Hillingdon Uxbridge, UB10 9NX</p>	<p>106 Rooms Single Double Twin</p>	<p>£69.00 W/Day £49.00 W/End</p>	<p>Please quote Brunel University Corporate rate when booking</p>
<p>MAYGOODS FARM High Street Cowley Uxbridge Middlesex Tel: 01895 233105 (Nick Milard)</p>	<p>En suite Twin: 5 Single</p>	<p>£55.00 £45.00</p>	<p>Continental Breakfast Included</p>
<p>OAKLAND Bangor's Road South Iver Buckinghamshire Tel: 01753 653003 (Mr. Fowler)</p>	<p>Single: 1 Double: 1 Twins: 2</p>	<p>£25.00 £40.00 £40.00</p>	<p>Breakfast Included</p>
<p>SHEPISTON LODGE 31 Shepiston Lane Hayes Middlesex Tel: 0208 573 0266</p>	<p>Single: 6 Double: 4 Twin: 10 Triple: 2</p>	<p>£45.00 £60.00 £60.00 £75.00</p>	<p>Breakfast included</p>



<p>THE TRAVEL INN The Grapes Uxbridge Road Hayes Middlesex Tel: 0208 573 7479</p>	<p>Double: 33 Family: 13 person 4 Family: 12 person 3 Disabled: 4</p>	<p>All rooms £59.95 Mon-Thurs £51.95 weekends</p>	<p>English breakfast £6.95 Continental Breakfast £5.25 Breakfast free for kids under 10.</p>
<p>Waterside bed and breakfast 18 Field Health Road Hillingdon Middx UB8 3NF Tel: 01895 251570</p>	<p>Single: 1 Twin: 4 Twin ensuite: 9</p>	<p>£35.00 £45.00 £50.00</p>	<p>Includes continental breakfast plus use of outside heated swimming pool.</p>

## Travel Directions to Brunel University

### By Bus

**From Uxbridge (underground) station:** U3 (alight Cleveland Road), U1 U4 and U7 (alight Kingston Lane), 427 (alight The Greenway and use river path), 607 express (alight The Greenway and use river path), 222 and U5 (alight Cowley Road and Use path via University flats).

**From Heathrow Central:** A10 "Heathrow Fast", every 15 minutes, journey time approximately 25 minutes (alight The Greenway and use river path).

**From West Drayton railway station:** U3 (alight Cleveland Road), 222 (alight Cowley Road and use path via University flats).

**From Stockley Park:** A10 "Heathrow Fast" as above, journey time approximately 10 minutes.

## **By Underground (London Transport)**

Take the Metropolitan Line from Baker Street (and Piccadilly Line during peak hours) westbound to Uxbridge station. Then you can take a taxi or bus route (see above for recommended services). Alternatively you can walk to the campus, using the 1-mile walking route shown below.

## **By Rail**

West Drayton (First Great Western Link) is the nearest main-line station (approx. 1.5 miles from the campus). Services run from London Paddington (approx journey length: 20 mins) or the West (Bristol). From West Drayton station take a bus towards Uxbridge: 222 (alight Cowley Road), U5 (alight Station Road), or U3 (alight Cleveland Road).

West Ruislip Station (Chiltern Railways) is the main-line service from London Marylebone and the North (Aylesbury, Banbury and Birmingham) and is approx 4 miles from the campus. From West Ruislip Station take the U1 bus towards Hillingdon Hospital, alight Cleveland Road.

## Walking from Uxbridge Town Centre

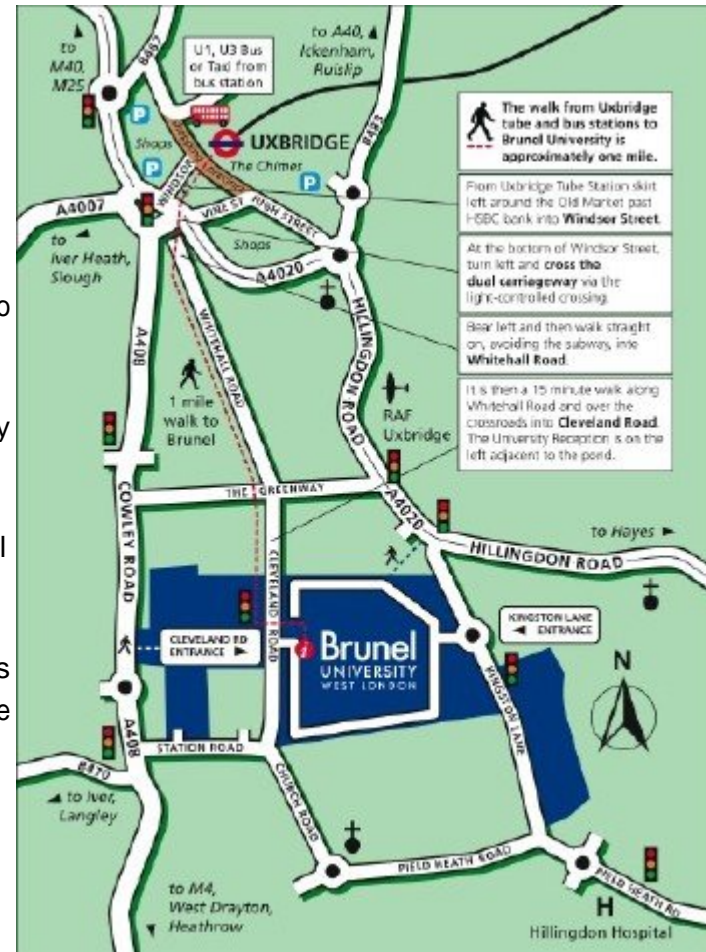
The walk from Uxbridge tube and bus stations (shown in red on map) is approximately one mile.

From Uxbridge Tube Station, skirt around the Old Market past HSBC bank into Windsor Street.

At the bottom of Windsor Street, turn left and cross the dual carriageway via the light-controlled crossing.

Bear left and then walk straight on, avoiding the subway, into Whitehall Road.

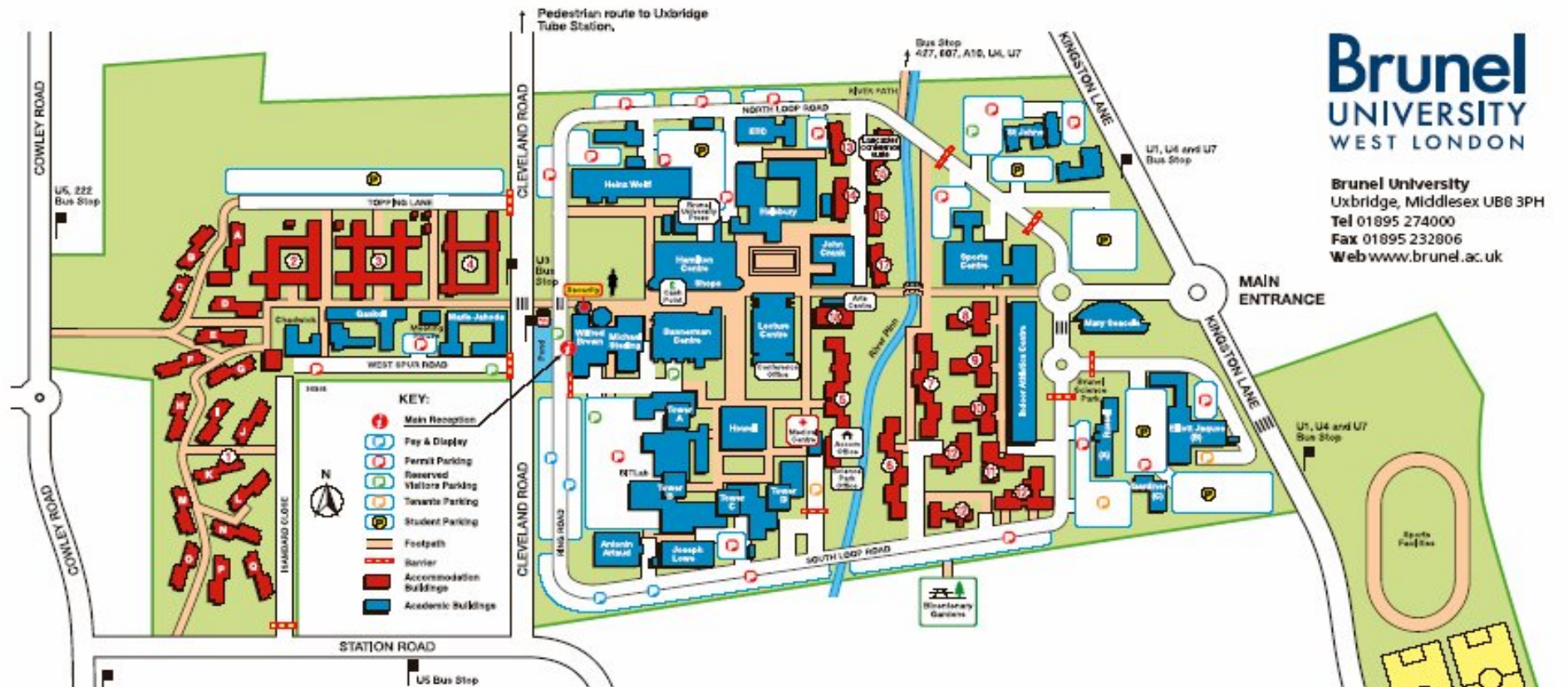
It is then a 15-minute walk along Whitehall Road and over the crossroads into Cleveland Road. The University Reception is on the left opposite the pond.



## Car Parking

***The conference site, St. John's Building, Department of Information Systems and Computing***, is located at Uxbridge Campus. There are plenty of car parking places around St. John's building.

For direction help: <http://www.brunel.ac.uk/about/where>



**Gaskell**  
English  
HERG  
Social Sciences  
Arts  
**Mario Jahoda**  
Law  
Psychology  
Social Anthropology  
Sociology and  
Communication  
Economics and Finance  
Politics and History  
**Heinz Wolff**  
Biosciences  
Sport Sciences  
BIB  
RSDO  
Disability and  
Dyslexia Service

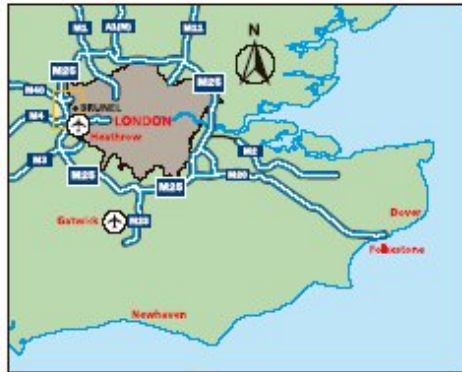
**Chadwick**  
Psychology  
Arts  
**Wilfrid Brown**  
Registry  
Estates and Operations  
Beldam Gallery  
External Relations  
**Michael Starling**  
Brunel Business School  
(Taught Programmes)  
Engineering and Design  
facilities  
**Bannerman Centre**  
Library  
Cash Office  
Student Centre  
Placement and Careers  
Job Shop  
West London Assessment  
Centre  
Assistive Technology Centre

**Joseph Lowe**  
Goods Inwards  
Mail Room  
Porters  
**Tower A**  
BCAST  
Design  
**Tower B**  
Mechanical Engineering  
**Tower C**  
Mechanical Engineering  
Electronic and Computer  
Engineering  
**Tower D**  
Mechanical and Civil  
Engineering  
Electronic and  
Computer Engineering

**Hamilton Centre**  
Refectory  
Students' Union  
Campus Shops  
**Halsbury**  
Institute for  
the Environment  
Geography and Earth  
Sciences  
Graduate School  
Wolfson Centre  
School of Sport and  
Education  
**Howell**  
Electronic and  
Computer Engineering  
Mechanical Engineering  
**John Crank**  
Computer Centre  
Mathematical Sciences

**Lecture Centre**  
Recital (Roberts) Room  
LTDU  
Media Services  
**St Johns**  
Information Systems  
and Computing  
**Mary Seacole**  
Health Sciences and Social  
Care  
**Brunel Science Park**  
**(A) Russell**  
Brunel International  
Language Centre  
LBT  
MBA  
**(B) Elliott Jaques**  
Brunel Business School  
**(C) Gardiner**  
CLEAPSS

**Residential Buildings**  
1. Isambard Complex  
2. Galbraith Hall  
3. Fleming Hall  
4. Mill Hall  
5. Saltash Hall  
6. Chepstow Hall  
7. Clifton Hall  
8. Bishop Hall  
9. Kilmorye Hall  
10. Lacy Hall  
11. St Margarets Hall  
12. Faraday Hall  
13. Borough Road Hall  
14. Maria Grey Hall  
15. Lancaster Hall  
16. Southwark Hall  
17. Stockwell Hall  
18. Gordon Hall



**Brunel**  
UNIVERSITY  
WEST LONDON

## Getting to Brunel University

### BY BUS

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**Brunel University**  
Uxbridge, Middlesex UB8 3PH  
Tel 01895 274000 Fax 01895 232806  
Web www.brunel.ac.uk

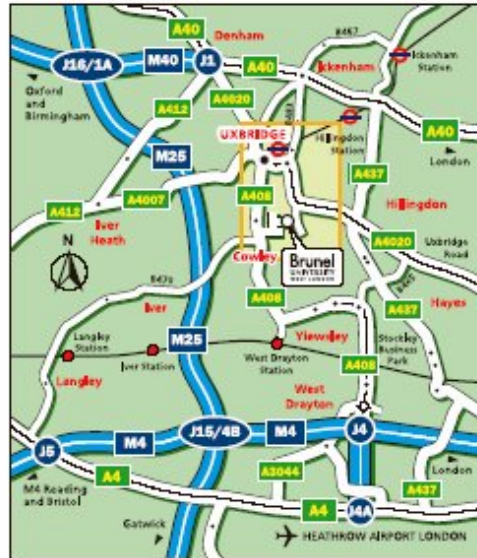
### BY UNDERGROUND

(London Transport) For Uxbridge Station take the Metropolitan Line from Baker Street (and Piccadilly Line during peak hours). Then take a taxi, or bus U1, U3, U4 or U7. (Alternatively use the 1-mile walking route shown on the right.)

### BY RAIL

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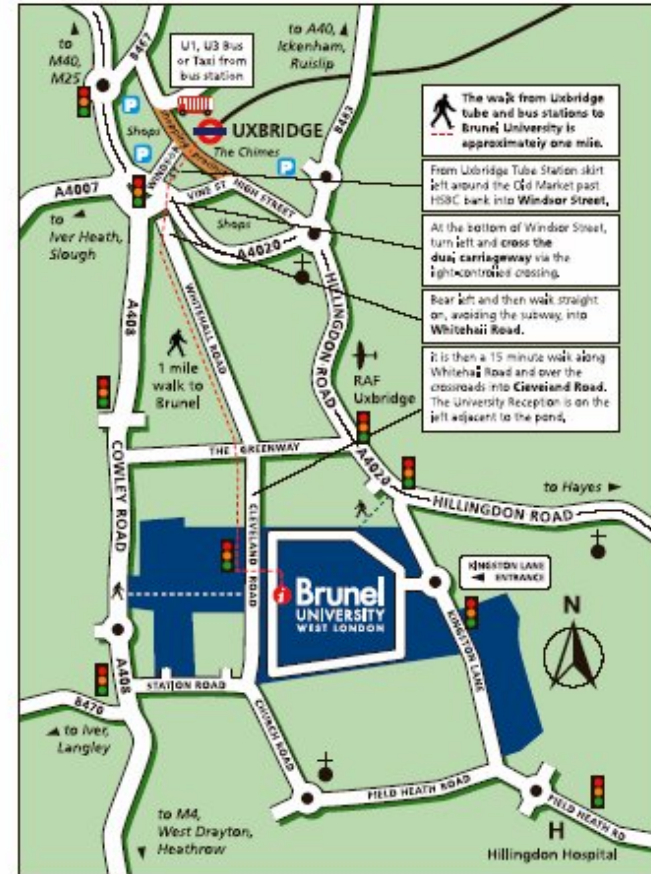
West Ruislip Station (Chiltern Railways) is the main-line service from London Marylebone and the North (Aylesbury, Banbury and Birmingham) and is approximately 4 miles from the campus. From West Ruislip Station take the U1 bus towards Hillingdon Hospital, alight Kingston Lane.



### BY ROAD

Parking on the Uxbridge Campus and in the local area is very restricted. Barriers control access to the site and all vehicles must display a valid permit. **Entry is via Kingston Lane only.** On arrival, visitors may apply for a permit for the day from the main Reception Desk in the Wilfred Brown Building. In addition, pay-and-display parking is available on site near Reception. **Clamping is in operation for illegally parked vehicles.**

**M4:** Leave M4 at Junction 4 and follow signs to Uxbridge (A408). Straight across first set of traffic lights, continue on A408, crossing four roundabouts. Turn right at the next set of major traffic lights. Continue ahead to next set of lights and, almost immediately take the right filter lane at second set of traffic lights into Station Road. Continue straight on into Church Road and take the first exit at a mini-roundabout into Field Heath Road. Turn left into Kingston Lane and left



into the University. To reach Reception, follow the ring road clockwise to the western side of the campus.

**A40/M40:** At Swakeleys Roundabout take B483 exit to Uxbridge. Follow signs across two mini-roundabouts. At major roundabout bear left onto A4020 (Brunel sign), straight ahead at the first lights, then almost immediately take second right filter turn onto Kingston Lane (signposted Brunel). The main entrance to Brunel is right at the next

roundabout. Follow signs for Main Reception as you enter the campus.

**M25:** (From North or South) Join M40 or M4 then see above.

### ACCESS BY CAR FOR REGISTERED DISABLED VISITORS

Disabled parking bays are available at various locations around the campus. Please collect a permit from Main Reception, Wilfred Brown Building, on arrival.