



NEWS RELEASE

Launch of NUS-Tsinghua Extreme Search Centre

NUS Partners Tsinghua University to Set Up New Centre to Advance Frontiers of Search Technology

23 July 2010 – The National University of Singapore (NUS) and Tsinghua University in Beijing, China, together with the Media Development Authority of Singapore (MDA), are pleased to announce the launch of the NUS-Tsinghua Extreme Search Centre, or NExT Search Centre (where N stands for NUS, Ex stands for Extrême, and T stands for Tsinghua). Facilitated by the Interactive Digital Media R&D Programme Office (IDMPO), the NExT Search Centre aims to carry out leading-edge research into the technologies, framework and applications of live media search, as well as explore the commercialisation of technologies to companies in Singapore, China and abroad.

The NExT Search Centre is supported by a funding of S\$10 million over five years by IDMPO, which is hosted by MDA, with combined contributions in kind from NUS and Tsinghua, bringing the total value of the support for the Centre to approximately S\$20 million. The Centre also aims to raise an additional S\$4 million in external grants to support its work. An agreement to set up the Centre was signed between NUS, Tsinghua University and MDA on 1 May 2010.

Headed by Professor Chua Tat Seng from the NUS School of Computing and Professor Sun Maosong from Tsinghua University's Department of Computer Science, the NExT Search Centre will engage more than 150 graduate students and researchers. A total of 25 principal investigators from both NUS and Tsinghua University will be leading various projects at the Centre. The centre will be overseen by a Management Committee comprising senior personnel from MDA, NUS and Tsinghua University.

With rising connectivity and the growing affordability of mobile and sensory gadgets in a digitised world, existing solutions have proven inadequate in managing the ever-growing wealth and quantity of data, especially live media and real-time data. To address this need, the NExT Search Centre will conduct research on technologies for extreme search, which refers to the search for data that is not indexed and searchable by current Web technologies. Such data includes innumerable real-time data streams generated continuously from sensors, mobile devices, and data sources such as forums and blogs located around the world. In particular, the NExT Search Centre seeks to extract meanings from these data streams, and use the extracted information to help realise a smart living space for all users. Applications of the research is potentially extensive, from traffic tracking and monitoring, event tracking and re-construction, monitoring and summary of events and sentiments in blogs and major forum sites.

The NExT Search Centre will have two sites, one in the NUS Kent Ridge campus in Singapore, and another in Tsinghua University's campus in Beijing. The dual locations will provide

opportunities for research and commercial stakeholders in Singapore and China to benefit from the cutting-edge, next-generation search technologies developed by the Centre.

Welcoming the formation of the NExT Search Centre, Mr Michael Yap, Executive Director, IDM R&D Programme Office said: “We are honoured to have Tsinghua University establish its first ever overseas research office in Singapore. As infrastructure improves and costs decrease, the Internet has evolved from a pure text medium to a mixture of media rich and ‘live’ data. The combined expertise of NUS and THU under NExT provides a much needed boost to the pressing problem of real-time interactive media search we hope that in time, the research resulting from the Centre will be adopted to give our industry a competitive edge in this sector.

Singapore is building a unique brand of R&D which marries the uniqueness of Asian and developing world culture with the robustness of trans-disciplinary research and deployment. Through this collaboration, NExT joins an international network boasting renowned partners from Europe, US and Asia and is a critical addition to the network where collaborations with the best of East-West technology, talent and imagination will help us continually push the edge, and stimulate breakthrough for technology’s next frontier.”

Commenting on NUS’ involvement in the NExT Search Centre, NUS Deputy President (Academic Affairs) and Provost Prof Tan Eng Chye said, “NUS is pleased to partner Tsinghua University in setting the standard for the next generation of search technology. With the combined expertise in Computer Science residing in both NUS and Tsinghua, we are confident of producing results that are of interest to the international research community and of relevance to industry and the wider society at home, in the region and beyond.”

Prof Kang Kejun, Vice President of Tsinghua University, spoke of the decision to partner NUS in setting up NExT: “We are glad to witness the birth of NExT, the joint research center on extreme search established at Tsinghua University and National University of Singapore. We believe the research center will provide an open, active and productive environment for the researchers in Tsinghua and NUS to accelerate emerging breakthroughs in the next generation search technologies and transfer these technologies into practice.”

The NExT Search Centre will carry out research in the following four areas:

- a) **Live Media Search:** To research on the analysis, filtering and retrieval of information embedded within thousands of live sensors, along with mobile devices and other associated news, calendar and e-mailing information.
- b) **Live Forum Search:** To study the mining and retrieval of multilingual and multimedia forum data, including opinion mining, question-answering and extraction of user behaviours and interests.
- c) **Distributed Infrastructure:** To tackle the key research challenges in developing distributed and networking support for the sampling, updating and distribution of data from millions of live sensors over large geographical regions.
- d) **Extreme database support:** To examine database support for live stream indexing, and spatial-temporal querying of millions of live streams.

The NeXT Search Centre will also build and maintain four systems, two of which will be open to public access to form the basis for large-scale deployment, testing and potential commercial spin-offs:

- a) **Extreme Sensor Test-bed** that includes thousands of sensors in Singapore and Beijing. This test-bed will be used for leading-edge research in live media search, as well as providing services to government organisations and companies.
- b) **Extreme Database System** that provides database support for live stream indexing, and spatial-temporal querying of millions of live streams.
- c) **Extreme Search System** that analyses and fuses signals obtained from thousands of live sensors as well as user level information from mobile devices and other information sources. It supports searches for events arising from these live sensory data. The system will offer applications in the areas of traffic tracking and monitoring, or event tracking and reconstruction.
- d) **Forum Mining and Search System** that tracks events, and provides summaries of events and sentiments in blogs and major forum sites, particularly those in Singapore and China.

Inaugural Workshop and Seminar

NUS will be hosting an inaugural workshop on 29 July 2010 with researchers from Tsinghua University to discuss the projects that the NeXT Search Centre will be embarking on. In addition, a seminar on Technologies for Next Generation Media Search will be held at NUS in August 2010 to showcase the University's research expertise in media search technologies to the industry and government organisations. A special interest group will be formed through the seminar that could serve as a platform for potential engagement with the industry and other funding agencies.

For further media enquiries, please contact:

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ANNEX 1: PARTNER AGENCIES BEHIND NExT

About the Interactive Digital Media R&D Programme Office (IDMPO)

The development of the IDM sector requires the collaboration of a diverse range of public sector agencies, educational institutions, industry players and other stakeholders. To achieve this, the National Research Foundation has allocated \$500 million to fund the development of a strategic IDM research programme and the set-up of the multi-agency IDM R&D Programme Office hosted by the Media Development Authority of Singapore. IDMPO oversees R&D initiatives for the country and coordinates a cross-disciplinary effort to deepen Singapore's research capacity in IDM. More information on IDM can be found on www.idm.sg.

About Media Development Authority of Singapore

Formed in 2003, the Media Development Authority of Singapore (MDA) plays a vital role in transforming Singapore into a Global Media City and positioning it at the forefront of the digital media age. MDA spearheads initiatives that promote developments in film, video, television, radio, publishing, music, games, animation, media services and Interactive Digital Media. At the same time, in ensuring clear and consistent regulatory policies and guidelines, MDA helps to foster a pro-business environment for industry players and increase media choices for consumers. For more information, please visit www.mda.gov.sg and www.smf.sg.

About National University of Singapore

A leading global university centred in Asia, the National University of Singapore (NUS) is Singapore's flagship university which offers a global approach to education and research, with a focus on Asian perspectives and expertise.

NUS has 14 faculties and schools across three campuses. Over 30,000 students from 100 countries enrich the community with their diverse social and cultural perspectives.

NUS has three Research Centres of Excellence (RCE) and 22 university-level research institutes and centres. It is also a partner in Singapore's 5th RCE. NUS shares a close affiliation with 16 national-level research institutes and centres. Research activities are strategic and robust, and NUS is well-known for its research strengths in engineering, life sciences and biomedicine, social sciences and natural sciences. It also strives to create a supportive and innovative environment to promote creative enterprise within its community.

For more information, please visit www.nus.edu.sg

About Tsinghua University

Tsinghua University is leading in most areas of technology R&D, and most national and international university rankings place Tsing as one of the best universities in China. Tsinghua graduates are also highly sought after by companies such as Google, IBM and Microsoft with entry to Tsinghua's undergraduate and graduate courses being amongst the toughest in China. (In 2008, 215 out of 300 students who scored the top 10 in the 30 tested provinces and regions chose Tsinghua as their university of choice, and on the average, only 16% of MBA applicants to

Tsinghua are accepted each year; making entrance to Tsinghua as competitive as the Wharton School MBA program at the University of Pennsylvania.)

ANNEX 2: KEY PERSONNEL IN NExT

NUS

CHUA, Tat-Seng (Media & Web Search at NExT)
Professor; Founding Dean, School of Computing, NUS
Associate Editor: ACM TOIS, The Visual Computer
Conference Co-Chair: ACM MM 2005, ACM SIGIR 2008
Research: MM Info Retrieval, Question-Answering

OOI, Beng-Chin (Extreme database at NExT)
Professor, Dean of School of Computing
Editor-in-Chief: IEEE TKDE; Editor: VLDB Journal
Research: Database Performance, Indexing Techniques, MM & Spatio-Temporal Databases,
P2P Systems & Advanced Applications

TAN, Kian-Lee (Extreme database at NExT)
Professor, Deputy Head, Department of Computer Science
Editor: VLDB Journal
Research: MM Info Retrieval, Query Processing & Optimization, Database Performance, and
Database Security

OOI, Wei-Tsang (P2P infrastructures at NExT)
Associate Professor
Research: Multimedia Systems, Distributed & Operating Systems Support for MM

YU, Hai-Feng (Distributed Systems at NExT)
Associate Professor
Research: Distributed Systems, Peer-to-Peer Systems, Fault-tolerance, Distributed Computing,
and Distributed Systems Security

CHAN, Mun-Choon (Wireless networking at NExT)
Associate Professor
Research: Sensor and Ad-hoc Network, Wireless Network, Network Security

YAN, Shuichang (Extreme search at NExT)
Assistant Professor
Associate Editor: IEEE TCSVT
Research: Computer Vision, Multimedia, Machine Learning, Info Retrieval

DATTA, Anindya (Forum search at NExT)
Associate Professor
Core contributions in database access structures and Web caching - holds patent on fragment
oriented caching employed by every Web application
Formed multiple successful commercial ventures out of research
Research: Deep Web, Semantic Search, Web Indexing

Tsinghua University

ZHANG, Bo (Media Retrieval at NExT)
Professor
Fellow of Chinese Academy of Sciences
Research: AI, Machine Learning and Video Retrieval

SUN, Maosong (Multilingual Web Search at NExT)
Professor
Chairman of CS Department, Vice president of the Language Information Processing Society of China
Research: NLP and Multilingual (English & Chinese) Web Search

ZHOU, Lizhu (Extreme Database at NExT)
Professor
Chairman of the Academic Committee of School of Information Sciences & Technology
Research: Database and Web search

MA, Shaoping (Web Search at NExT)
Professor
Director of National Key Lab on Intelligent Technologies and Systems
Research: AI and Web Search

YANG, Shiqiang (Media Search, P2P at NExT)
Professor
Chairman of the Multimedia Committee of China Computer Federation; Co-Director of Microsoft-Tsinghua Multimedia Joint Lab
Research: MM Application, Video Procession, Streaming Media and Embedded MM

FENG, Ling (Extreme Database at NExT)
Professor
Research: Context-Aware Data Mgmt, Knowledge-based Info Systems, Data Mining & Warehousing, and Distributed Object-Oriented DBMS

CAI, Lianhong (Media Search at NExT)
Professor
Research: Audio Processing and Retrieval

LI, Juanzi (Search and Semantic Web at NExT)
Professor
Research: Semantic Web

WEN, Jiangtao (Wireless at NExT)
Professor
Research: Wireless Computing, Internet of Things

FENG, Jianhua (Extreme Database at NExT)
Professor

Research: Database System for Extreme Search

XU, Bin (Search and Semantic Web at NExT)

Associate Professor

Research: Semantic Web

SUN, Lifeng (P2P Infrastructures at NExT)

Associate Professor

Research: Infrastructure P2P Support, Video Processing

ZHANG, Min (Multilingual Web Search at NExT)

Associate Professor

Research: Web Info Retrieval, User Behaviour Analysis, Machine Learning

CHEN, Kang (Cloud and distributed, parallel computing at NExT)

Associate Professor

Research: High Performance Computing, Cloud Computing

Li Jianmin (Media Search at NExT)

Assistant Professor

Research: Video Retrieval and Processing, machine Learning

LI, Guoliang (Database related search at NExT)

Assistant Professor

Research: Database System for Extreme Search

LIU, Yiqun (Web search at NExT)

Assistant Professor

Research: Web Info Retrieval, User Behaviour Analysis, Machine Learning