

Table of Contents

Preface from NTCIR-9 General Chairs	viii
Noriko Kando, Tsuneaki Kato and Eiichiro Sumita	
Overview of NTCIR-9	1
Tetsuya Sakai and Hideo Joho	
Keynote	
Natural Language Understanding, Semantic-based Information Retrieval and Knowledge Management	8
Jun'ichi Tsujii	
Core Tasks	
Geotemporal Information Retrieval Task (GeoTime)	
NTCIR9-GeoTime Overview - Evaluating Geographic and Temporal Search: Round 2	9
Fredric Gey, Ray R. Larson, Jorge Machado and Masaharu Yoshioka	
The Use of Inference Network Models in NTCIR-9 GeoTime	18
Christopher G. Harris	
Geo-temporal Information Retrieval Based on Semantic Role Labeling and Rank Aggregation	22
Yoonjae Jeong, Gwan Jang, Kyung-min Kim and Sung-Hyon Myaeng	
Modification of Vocabulary-based Re-ranking for Geographic and Temporal Searching at NTCIR GeoTime Task	29
Kazuaki Kishida and Ikuko Matsushita	
Probabilistic Text Retrieval for NTCIR9 GeoTime	33
Ray R. Larson	
Geo-Temporal retrieval filtering versus answer resolution using Wikipedia	38
Jorge Machado, José Borbinha and Bruno Martins	
SINAI at NTCIR-9 GeoTime: a filtering and reranking approach based solely on geographical entities	48
José M. Perea-Ortega, Miguel Ángel García-Cumbreras, Manuel García-Vega and L. Alfonso Ureña-López	
University of Alicante at NTCIR-9 GeoTime	52
Fernando S. Peregrino, David Tomás and Fernando Llopis Pascual	
NTCIR-9 GeoTime at Osaka Kyoiku University - Toward Automatic Extraction of Place/Time Terms -	59
Takashi Sato	
GeoTime Retrieval through Passage-based Learning to Rank	64
Xiao-Lin Wang, Hai Zhao and Bao-Liang Lu	
RMIT and Gunma University at NTCIR-9 GeoTime Task	69
Michiko Yasukawa, J. Shane Culpepper, Falk Scholer and Matthias Petri	
ABRIR at NTCIR-9 GeoTime Task Usage of Wikipedia and GeoNames for Handling Named Entity Information	75
Masaharu Yoshioka	

Intent Task with One Click Access subtask (INTENT with 1CLICK)

Overview of the NTCIR-9 INTENT Task	82
Ruihua Song, Min Zhang, Tetsuya Sakai, Makoto P. Kato, Yiqun Liu, Miho Sugimoto, Qinglei Wang and Naoki Orii	
ICTIR Subtopic Mining System at NTCIR-9 INTENT Task	106
Shuai Zhang, Kai Lu and Bin Wang	
University of Glasgow at the NTCIR-9 Intent task: Experiments with Terrier on Subtopic Mining and Document Ranking	111
Rodrygo L. T. Santos, Craig Macdonald and Iadh Ounis	
Microsoft Research Asia at the NTCIR-9 Intent Task	116
Jialong Han, Qinglei Wang, Naoki Orii, Zhicheng Dou, Tetsuya Sakai and Ruihua Song	
THUIR at NTCIR-9 INTENT Task	123
Yufei Xue, Fei Chen, Tong Zhu, Chao Wang, Zhichao Li, Yiqun Liu, Min Zhang, Yijiang Jin and Shaoping Ma	
NTU Approaches to Subtopic Mining and Document Ranking at NTCIR-9 Intent Task	129
Chieh-Jen Wang, Yung-Wei Lin, Ming-Feng Tsai and Hsin-Hsi Chen	
The KLE's Subtopic Mining System for the NTCIR-9 INTENT Task	135
Se-Jong Kim, Hwidong Na and Jong-Hyeok Lee	
Qualifier Mining for NTCIR-INTENT	138
Haitao Yu, Fuji Ren and Song Liu	
RMIT and Gunma University at NTCIR-9 Intent Task	143
Michiko Yasukawa, J. Shane Culpepper, Falk Scholer and Matthias Petri	
Redundancy Removal to Selectively Diversify Information Retrieval Results	150
Xiao-Lin Wang, Hai Zhao and Bao-Liang Lu	
UWaterloo at NTCIR-9: Intent discovery with anchor text	154
John A. Akinyemi and Charles L.A. Clarke	
HITSCIR System in NTCIR-9 Subtopic Mining Task	156
Wei Song, Yu Zhang, Handong Gao, Ting Liu and Sheng Li	
The Report on Subtopic Mining and Document Ranking of NTCIR-9 Intent Task	162
Wei-Lun Xiao, Shih-Hung Wu, Liang-Pu Chen and Tsun Ku	
ISCAS at Subtopic Mining Task in NTCIR9	168
Xue Jiang, Xianpei Han and Le Sun	
Mining Search Subtopics from Query Logs	172
Dan Zhu, Jianwei Cui, Jun He, Xiaoyong Du and Hongyan Liu	
HIT² Joint NLP Lab at the NTCIR-9 Intent Task	174
Dongqing Xiao, Haoliang Qi, Jingbin Gao, Zhongyuan Han, Muyun Yang and Sheng Li	
Overview of NTCIR-9 1CLICK	180
Tetsuya Sakai, Makoto P. Kato and Young-In Song	

Information Extraction based Approach for the NTCIR-9 1CLICK Task	202
Makoto P. Kato, Meng Zhao, Kosetsu Tsukuda, Yoshiyuki Shoji, Takehiro Yamamoto, Hiroaki Ohshima and Katsumi Tanaka	
TTOKU Summarization Based Systems at NTCIR-9 1CLICK task	208
Hajime Morita, Takuya Makino, Tetsuya Sakai, Hiroya Takamura and Manabu Okumura	
Microsoft Research Asia at the NTCIR-9 1CLICK Task	216
Naoki Orii, Young-In Song and Tetsuya Sakai	

IR for Spoken Documents Task (SpokenDoc)

Overview of the IR for Spoken Documents Task in NTCIR-9 Workshop	223
Tomoyosi Akiba, Hiromitsu Nishizaki, Kiyooki Aikawa, Tatsuya Kawahara and Tomoko Matsui	
Spoken Term Detection Using Multiple Speech Recognizers' Outputs at NTCIR-9 SpokenDoc STD subtask	236
Hiromitsu Nishizaki, Hiroto Furuya, Satoshi Natori and Yoshihiro Sekiguchi	
High speed spoken term detection by combination of n-gram array of a syllable lattice and LVCSR result for NTCIR-SpokenDoc	242
Keisuke Iwami and Seiichi Nakagawa	
Spoken document retrieval method combining query expansion with continuous syllable recognition for NTCIR-SpokenDoc	249
Satoru Tsuge, Hiromasa Ohashi, Norihide Kitaoka, Kazuya Takeda and Kenji Kita	
DCU at the NTCIR-9 SpokenDoc Passage Retrieval Task	257
Maria Eskevich and Gareth J. F. Jones	
Toward improvement of SDR accuracy using LDA and query expansion for SpokenDoc	261
Kiichi Hasegawa, Hideki Sekiya, Masanori Takehara, Taro Niinomi, Satoshi Tamura and Satoru Hayamizu	
STD based on Hough Transform and SDR using STD results: Experiments at NTCIR-9 SpokenDoc	264
Taisuke Kaneko, Tomoko Takigami and Tomoyosi Akiba	
Utilization of Suffix Array for Quick STD and Its Evaluation on the NTCIR-9 SpokenDoc Task	271
Kouichi Katsurada, Koudai Katsuura, Yurie Iribe and Tsuneo Nitta	
Spoken Document Retrieval Experiments for SpokenDoc at Ryukoku University (RYSdT)	275
Hiroaki Nanjo, Kazuyuki Noritake and Takehiko Yoshimi	
An STD system for OOV query terms using various subword units	281
Hiroyuki Saito, Takuya Nakano, Shirou Narumi, Toshiaki Chiba, Kazuma Kon'no and Yoshiaki Itoh	
YLAB@RU at Spoken Term Detection Task in NTCIR-9	287
Yoichi Yamashita, Toru Matsunaga and Kook Cho	

Recognizing Inference in Text Task (RITE)

Overview of NTCIR-9 RITE: Recognizing Inference in Text	291
Hideki Shima, Hiroshi Kanayama, Cheng-Wei Lee, Chuan-Jie Lin, Teruko Mitamura, Yusuke Miyao, Shuming Shi and Koichi Takeda	

A Machine Learning based Textual Entailment Recognition System of JAIST Team for NTCIR9 RITE	302
Quang Nhat Minh Pham, Le Minh Nguyen and Akira Shimazu	
Predicate-argument Structure based Textual Entailment Recognition System of KYOTO Team for NTCIR9 RITE	310
Tomohide Shibata and Sadao Kurohashi	
UIOWA at NTCIR-9 RITE: Using the Power of the Crowd to Establish Inference Rules	318
Christopher G. Harris	
ICRC_HITSZ at RITE: Leveraging Multiple Classifiers Voting for Textual Entailment Recognition	325
Yaoyun Zhang, Jun Xu, Chenlong Liu, Xiaolong Wang, Ruifeng Xu, Qingcai Chen, Xuan Wang, Yongshuai Hou and Buzhou Tang	
NTTCS Textual Entailment Recognition System for NTCIR-9 RITE	330
Yasuhiro Akiba, Hirotoishi Taira, Sanae Fujita, Kaname Kasahara and Masaaki Nagata	
FudanNLP at RITE 2011: a Shallow Semantic Approach to Textual Entailment	335
Ling Cao, Xipeng Qiu and Xuanjing Huang	
IMTKU Textual Entailment System for Recognizing Inference in Text at NTCIR-9 RITE	339
Min-Yuh Day, Re-Yuan Lee, Cheng-Tai Liu, Chun Tu, Chin-Sheng Tseng, Loong Tern Yap, Allen-Green C.L. Huang, Yu-Hsuan Chiu and Wei-Ze Hong	
The Yuntech System in NTCIR-9 RITE Task	345
Nai-Hsuan Han and Lun-Wei Ku	
NTU Textual Entailment System for NTCIR 9 RITE Task	349
Hen-Hsen Huang, Kai-Chun Chang, James M.C. Haver II and Hsin-Hsi Chen	
The Description of the NTOU RITE System in NTCIR-9	353
Chuan-Jie Lin and Bo-Yu Hsiao	
WUST SVM-Based System at NTCIR-9 RITE Task	357
Maofu Liu, Yan Li, Yu Xiao and Chunwei Lei	
Recognizing Text Entailment via Syntactic Tree Matching	361
Zhewei Mai, Yue Zhang and Donghong Ji	
A Textual Entailment System using Web based Machine Translation System	365
Partha Pakray, Snehasis Neogi, Sivaji Bandyopadhyay and Alexander Gelbukh	
The WHUTE System in NTCIR-9 RITE Task	373
Han Ren, Chen Lv and Donghong Ji	
IASL RITE System at NTCIR-9	379
Cheng-Wei Shih, Cheng-Wei Lee, Ting-Hao Yang and Wen-Lian Hsu	
LTI's Textual Entailment Recognizer System at NTCIR-9 RITE	386
Hideki Shima, Yuanpeng Li, Naoki Orii and Teruko Mitamura	
ZSWSL Text Entailment Recognizing System at NTCIR-9 RITE Task	394
Ranxu Su, Sheng Shang, Pan Wang, Haixu Liu and Yan Zheng	

Experiments for NTCIR-9 RITE Task at Shibaura Institute of Technology	400
Toru Sugimoto	
Syntactic Difference Based Approach for NTCIR-9 RITE Task	404
Yuta Tsuboi, Hiroshi Kanayama, Masaki Ohno and Yuya Unno	
Experiments of FX for NTCIR-9 RITE Japanese BC Subtask	412
Hiroshi Umemoto and Keigo Hattori	
TU Group at NTCIR9-RITE: Leveraging Diverse Lexical Resources for Recognizing Textual Entailment	418
Yotaro Watanabe, Junta Mizuno, Eric Nichols, Katsuma Narisawa, Keita Nabeshima and Kentaro Inui	
Binary-class and Multi-class Chinese Textual Entailment System Description in NTCIR-9 RITE	422
Shih-Hung Wu, Wan-Chi Huang, Liang-Pu Chen and Tsun Ku	
MCU at NTCIR: A Resources Limited Chinese Textual Entailment Recognition System	427
Yu-Chieh Wu, Chung-Jung Lee and Yaw-Chu Chen	
ICL Participation at NTCIR-9 RITE	433
Xu Xing and Wang Houfeng	
Pilot Tasks	
Cross-lingual Link Discovery Task (CrossLink)	
Overview of the NTCIR-9 Crosslink Task: Cross-lingual Link Discovery	437
Ling-Xiang Tang, Shlomo Geva, Andrew Trotman, Yue Xu and Kelly Y. Itakura	
Using Concept base and Wikipedia for Cross-Lingual Link Discovery	464
Pham Huy Anh and Takashi Yukawa	
IISR Crosslink Approach at NTCIR 9 CLLD Task	469
Chun-Yuan Cheng, Yu-Chun Wang and Richard Tzong-Han Tsai	
HITS' Graph-based System at the NTCIR-9 Cross-lingual Link Discovery Task	473
Angela Fahrni, Vivi Nastase and Michael Strube	
English-to-Korean Cross-linking of Wikipedia Articles at KSLP	481
In-Su Kang and Ralph Marigomen	
Cross-lingual Link Discovery by Using Link Probability and Bilingual Dictionary	484
Sin-Jae Kang	
UKP at CrossLink: Anchor Text Translation for Cross-lingual Link Discovery	487
Jungi Kim and Iryna Gurevych	
KMI, The Open University at NTCIR-9 CrossLink: Cross-Lingual Link Discovery in Wikipedia Using Explicit Semantic Analysis	495
Petr Knoth, Lukas Zilka and Zdenek Zdrahal	
Discovering Links by Context Similarity and Translated Key Phrases for NTCIR9 CrossLink	503
Yi-Hsun Lee, Chung-Yao Chuang, Cen-Chieh Chen and Wen-Lian Hsu	

WUST EN-CS Crosslink System at NTCIR-9 CLLD Task	508
Maofu Liu, Le Kang, Shuang Yang and Hong Zhang	
Automated Cross-lingual Link Discovery in Wikipedia	512
Ling-Xiang Tang, Daniel Cavanagh, Andrew Trotman, Shlomo Geva, Yue Xu and Laurianne Sitbon	
Multi-filtering Method Based Cross-lingual Link Discovery	520
Yingfan Gao, Hongjiao Xu, Junsheng Zhang and Huilin Wang	
Interactive Visual Exploration Task (VisEx)	
Overview of the VisEx task at NTCIR-9	524
Tsuneaki Kato, Mitsunori Matsushita and Hideo Joho	
Grid-based Interaction for NTCIR-9 VisEx Task	533
Hideo Joho and Tetsuya Sakai	
How Does a User Utilize a Chart-based Interface to Conduct Exploratory Data Analysis?	541
Kazuhiro Tanaka, Daiki Hasui and Mitsunori Matsushita	
Read Article Management in Document Search Process for NTCIR-9 VisEx Task	547
Yasufumi Takama, Shunichi Hattori and Ryosuke Miyake	
Effects of the Variety of Document Retrieval Methods on Interactive Information Access - An Experiment in the NTCIR-9 VisEx Task -	553
Tsuneaki Kato	
Patent Machine Translation Task (PatentMT)	
Overview of the Patent Machine Translation Task at the NTCIR-9 Workshop	559
Isao Goto, Bin Lu, Ka Po Chow, Eiichiro Sumita and Benjamin K. Tsou	
BBN's Systems for the Chinese-English Sub-task of the NTCIR-9 PatentMT Evaluation	579
Jeff Ma and Spyros Matsoukas	
NTT-UT Statistical Machine Translation in NTCIR-9 PatentMT	585
Katsuhito Sudoh, Kevin Duh, Hajime Tsukada, Masaaki Nagata, Xianchao Wu, Takuya Matsuzaki and Jun'ichi Tsujii	
The <i>NiuTrans</i> Machine Translation System for NTCIR-9 PatentMT	593
Tong Xiao, Qiang Li, Qi Lu, Hao Zhang, Haibo Ding, Shujie Yao, Xiaoming Xu, Xiaoxu Fei, Jingbo Zhu, Feiliang Ren and Huizhen Wang	
The RWTH Aachen System for NTCIR-9 PatentMT	600
Minwei Feng, Christoph Schmidt, Joern Wuebker, Stephan Peitz, Markus Freitag and Hermann Ney	
IBM Chinese-to-English PatentMT System for NTCIR-9	606
Young-Suk Lee, Bing Xiang, Bing Zhao, Martin Franz, Salim Roukos and Yaser Al-Onaizan	
Use of the Japio Technical Field Dictionaries for NTCIR-PatentMT	614
Tadaaki Oshio, Tomoharu Mitsuhashi and Tsuyoshi Kakita	
LIUM's Statistical Machine Translation System for the NTCIR Chinese/English PatentMT	618
Holger Schwenk and Sadaf Abdul-Rauf	

Machine translation system for patent documents combining rule-based translation and statistical post-editing applied to the PatentMT Task	623
Terumasa Ehara	
ZZX_MT: the BeiHang MT System for NTCIR-9 PatentMT Task	629
WenHan Chao and Zhoujun Li	
ISTIC Statistical Machine Translation System for Patent machine translation in NTCIR-9	634
Yanqing He, Chongde Shi and Huilin Wang	
System Description of BJTU-NLP SMT for NTCIR-9 PatentMT	638
Junjie Jiang, Jinan Xu, Youfang Lin and Yujie Zhang	
Learning of Linear Ordering Problems and its Application to J-E Patent Translation in NTCIR-9 PatentMT	641
Shuhe Kondo, Mamoru Komachi, Yuji Matsumoto, Katsuhito Sudoh, Kevin Duh and Hajime Tsukada	
Statistical Machine Translation with Rule based Machine Translation	646
Jin'ichi Murakami and Masato Tokuhisa	
POSTECH's Statistical Machine Translation Systems for NTCIR-9 PatentMT Task (English-to-Japanese)	652
Hwidong Na, Jin-Ji Li, Se-Jong Kim and Jong-Hyeok Lee	
EBMT System of KYOTO Team in PatentMT Task at NTCIR-9	657
Toshiaki Nakazawa and Sadao Kurohashi	
Statistical Approaches to Patent Translation for PatentMT - Experiments with Various Settings of Training Data	661
Yuen-Hsien Tseng, Chao-Lin Liu, Chia-Chi Tsai, Jui-Ping Wang, Yi-Hsuan Chuang and James Jeng	
SMT Systems in the University of Tokyo for NTCIR-9 PatentMT	666
Xianchao Wu, Takuya Matsuzaki and Jun'ichi Tsujii	
The ICT's Patent MT System Description for NTCIR-9	673
Hao Xiong, Linfeng Song, FanDong Meng, Yajuan Lü and Qun Liu	
HPB SMT of FRDC Assisted by Paraphrasing for the NTCIR-9 PatentMT	679
Zhongguang Zheng, Naisheng Ge, Yao Meng and Hao Yu	
[PatentMT] Summary Report of Team III_CYUT_NTHU	684
Joseph Chang, Ho-Ching Yen, Shih-Ting Huang, Ming-Jhuan Jiang, Chung-Chi Huang, Jason S. Chang and Ping-Che Yang	
Author Index	689
Organization of the NTCIR-9 Workshop	693