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Yuchul Jung

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Areas of Research Interests

- 1) Information Retrieval: Query expansion using Web resources / Social search
- 2) Knowledge Construction: Activity & situation knowledge construction / English-Korean commonsense knowledge construction
- 3) Semantic Web: Semantic service annotation / Goal-based semantic service discovery
- 4) Classification Problems: Sentiment & Mood classification on blogs
- 5) Cognitive Robotics: Cognitive architecture & knowledge support for human-robot interaction

Education

- 2005 -2011** **Ph.D.**, *Department of Computer Science, Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Korea*
- Dissertation: An Activity Knowledge Base from Multiple Resources: Construction and Utilizations
 - Advisor: Dr. Sung-Hyon Myaeng
- 2003-2005** **M.S.**, *Digital Media, Department of Information and Communications, Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Korea*
- 1996-2003** **B.S.**, *Department of Information and Communications, Ajou Univ., Suwon, Korea*

Awards

- 2011. 02** **Best Ph.D. thesis award** from *Department of Computer Science, Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Korea*
- Dissertation: An Activity Knowledge Base from Multiple Resources: Construction and Utilizations

Research Experiences (Recent 5yrs)

2009.03 ~ current	<p>Situation Ontology / Activity Knowledge Construction [Research for Ph.D. thesis]</p> <ul style="list-style-type: none"> -Data modeling for situation ontology and situation ontology construction using eHow/wikiHow.com (Published a paper in <i>Journal of Web Semantics</i>, 2010) -Developing activity knowledge extraction modules for semi-/un-structured Web documents (Ph.D. thesis) -Currently, working on the development of unsupervised activity knowledge extraction techniques for multiple Web resources. -Preparing a survey article on “Experiential knowledge mining”
2009.03 ~ current	<p>Development of Customer Oriented Convergent Service Common Platform Technology based on Network, funded by MKE/IITA</p> <ul style="list-style-type: none"> -Developed a goal-driven semantic service discovery for semantic web service composition (Performed a demonstration at ESWC’11) -Proposed a new knowledge support mechanism for user-driven service composition (Published a paper in <i>IEEE Communications Magazine</i>, 2011) -Currently, working on the development of a federated social search platform which deals with a social network server, a wiki server (e.g., XWiki) and a file cloud server (e.g., Dropbox)
2008.01 ~ 2008. 12	<p>Exploiting a Large-Scale Commonsense Knowledge Base for Context-Driven Ad Placement, funded by Microsoft adCenter (USA)</p> <ul style="list-style-type: none"> - Analysis of MS adCenter’s ads click logs and query logs - Propose a new approach for contextual ads placement using commonsense knowledge
2007.07 ~ 2007. 11	<p>Topic-based Content Filtering and Usage Intention Analysis for Chatting Service, funded by SK Telecom (SKT) Corp.</p> <ul style="list-style-type: none"> -Managed the development of system modules for chatting service on the SK telecom platform
2007.01 ~ 2007. 05	<p>Semantic Web Pilot Study, funded by Korea Telecom (KT) R&D.</p> <ul style="list-style-type: none"> -Implemented a prototype for semantic web pilot study using semantic news retrieval, sentiment analysis, and event detection techniques
2006.11 ~ 2007.11	<p>Analysis of Industry/Occupation Automatic Coding System, funded by National Statistic Organization (NSO)</p> <ul style="list-style-type: none"> - System analysis of existing NSO’s industry/occupation coding system - Developed an enhanced industry/occupation coding system using machine learning techniques (Presented a paper at WISE’08)
2006.04 ~ 2009. 04	<p>Cognitive Robotics for Human-Robot Interaction, funded by Korea Institute of Science and Technology (KIST)</p> <ul style="list-style-type: none"> -Modeling a script knowledge for HRI -Preliminary researches for automatic script knowledge generation (Presented papers at ROMAN’07 and IRI’07)
2005.05 ~ 2008. 04	<p>Achieving Commonsense-based Context-awareness through Development of Korean ConceptNet, funded by KOSEF/KICOS [<i>Collaboration with MIT Media Lab.</i>]</p> <ul style="list-style-type: none"> -Data analysis of commonsense knowledge (i.e., ConceptNet of MIT Media Lab.) -Building of Korean ConceptNet using machine translation techniques -Performed experiments on mood classification using commonsense knowledge (Presented papers at PRICAI’06, CICLING’07, and WI’07)

Professional Experiences

- 2009-current Research scientist, *Internet Research Lab., Electronics and Telecommunications Research Institute (ETRI)*, Daejeon, Korea
- 2005-2008 Graduate Student Researcher, *Department of Computer Science, Korea Advanced Institute of Science and Technology (KAIST)*, Korea, Supervisor: Dr. Sung-Hyon Myaeng
- 2003-2005 Graduate Student Assistant, *Department of Information and Communications Engineering, Digital Media Lab., Korea Advanced Institute of Science and Technology (KAIST)*, Korea, Supervisor: Dr. Yong. K. Hwang

(International) Publications

Journal Papers

- [1] [Yuchul Jung](#), Yoo-mi Park, Hyunjoo Bae, Byungsun Lee, and Jinsul Kim (2011), **Employing Collective Intelligence for User Driven Service Creation**, IEEE Communications Magazine, 49(1), pp. 76-83.
- [2] [Yuchul Jung](#), Jihee Ryu, Kyung-min Kim, and Sung-Hyon Myaeng (2010), **Automatic Construction of a Large-Scale Situation Ontology by Mining How-to Instructions from the Web**, Journal of Web Semantics, 8(2), pp. 110-124.
- [3] Sungpil Choi, [Yuchul Jung](#), and Sung-Hyon Myaeng (2007), **Optimization of Domain-Independent Classification Framework for Mood Classification**, International Journal of Information Processing Systems, Korea Information Processing Society 3(2):73-81.
- [4] Yun Jin, Sung-Hyon Myaeng, and [Yuchul Jung](#) (2007), **Use of Place Information for Improved Event Tracking**, Information Processing & Management 983, Volume 43, pp.365-378.
- [5] Hyunseok Kim, [Yuchul Jung](#), and Yong K. Hwang (2005), **Taxonomy of Atomic Actions for Home-Service Robots**, Journal of Advanced Computational Intelligence and Intelligence Informatics (JACIII) 9(2), pp.114-120.

Conference Papers

- [1] Yoo-mi Park, HyunKyung Yoo, [Yuchul Jung](#), Cinyoung Hur, Hyunjoo Bae, **Semantic Web Service Process for Goal-driven Application Creation**, ICIN 2011 Technical Paper Session (in press)
- [2] [Yuchul Jung](#), Jihee Yoo, and Sung-Hyon Myaeng, **A Web-based Automated System for Industry and Occupation Coding**, The Ninth International Conference on Web Information Systems Engineering (WISE-08), LNCS 5175, pp. 443-457, 2008.
- [3] Hogun Park, Yoonjung Choi, [Yuchul Jung](#), and Sung-Hyon Myaeng, **Supporting Mixed Initiative Human-Robot Interaction: A Script Based Cognitive Architecture Approach**, International Joint Conference on Neural Networks (IJCNN-08), pp. 4107-4113, 2008.
- [4] Youngho Kim, [Yuchul Jung](#), and Sung-Hyon Myaeng, **An Automatic Opinion Analysis System Using Domain-Specific Lexical Knowledge**, Asian Information Retrieval Symposium (AIRS-08), LNCS 4993, pp. 466-471, 2008.
- [5] [Yuchul Jung](#), Yoonjung Choi, and Sung-Hyon Myaeng, **Determining Mood for a Web Blog by Combining Multiple Sources of Evidence**, IEEE/WIC/ACM International Conference on Web Intelligence (WI-07), pp. 271-274, 2007.
- [6] [Yuchul Jung](#), Yoonjung Choi, Hogun Park, Wookhyun Shin, and Sung-Hyon Myaeng, **Integrating Robot Task Scripts with a Cognitive Architecture for Cognitive Human-Robot Interaction**, IEEE International Conference on Information Reuse and Integration (IRI-07), pp.152-157, 2007.
- [7] [Yuchul Jung](#), Hogun Park, Yoonjung Choi, and Sung-Hyon Myaeng, **Designing a Cognitive**

Case-Based Reasoning Framework for Home Service Robots, 16th IEEE International Symposium on Robot & Human Interactive Communication (RO-MAN), pp.827-832, 2007.

- [8] [Yuchul Jung](#), Hogun Park, and Sung-Hyon Myaeng, **A Hybrid Mood Classification Approach for Blog Text**, PRICAI2006, LNAI4099, pp.1099-1103, 2006.
- [9] [Yuchul Jung](#), Yong K. Hwang, and Manjai Lee, **Case-Based Reasoning Approach to Task Planning of Home-Service Robots**, The 14th Int. Conf. on Artificial Reality and Telexistence, Seoul, Korea, Nov. 2004.

Workshop Papers

- [1] Yoonjung Choi, [Yuchul Jung](#), and Sung-Hyon Myaeng, **Identifying Controversial Issues and their Sub-topics in News Articles**, Pacific Asia Workshop on Intelligence and Security in Conjunction with PAKDD'10 (PAISI'10), LNCS 6122, pp. 140-153, 2010.
- [2] Jihee Ryu, [Yuchul Jung](#), Kyung-min Kim, and Sung-Hyon Myaeng, **Automatic Extraction of Human Activity Knowledge from Method-Describing Web Articles**, Proc. of the 1st Workshop on Automated Knowledge Base Construction (AKBC'10), Grenoble, France, 2010.
- [3] [Yuchul Jung](#), Sungkooc Lim, Jeong-Hwan Kim, and Sangki Kim, **Web Mining based OALF Model for Context-Aware Mobile Advertising System**, The 4th IEEE/IFIP Int. Workshop on Broadband Convergence Networks (BcN-09), pp. 13-18, 2009.
- [4] Youngho Kim, [Yuchul Jung](#), and Sung-Hyon Myaeng, **Identifying Opinion Holders in Opinion text from Online Newspapers**, IEEE Granular Computing (Grc-07), pp. 699-702, 2007.

Demos

- [1] Yoo-mi Park, [Yuchul Jung](#), HyunKyung Yoo, Hyunjoo Bae, Hwa-Sung Kim, **EasyApp: Goal-driven Service Flow Generator with Semantic Web Service Technologies**, ESWC 2011, Part II, LNCS 6644, pp. 446-450, 2011.

Patents

Domestic Patent Pending

- [1] [Yuchul Jung](#), Hyunjoo Bae, Byungsun Lee, “Automatic Service Goal Interpretation and Service Matching Techniques for Goal-driven Semantic Service Discovery”, 10-2011-xxxxx, Korea, Oct., 2011
- [2] Sung-Hyon Myaeng, Kyungmin Kim, [Yuchul Jung](#), Keunchan Park, Jinhyuk Choi, “Method and system for searching mobile application using human activity knowledge database”, 10-2011-0001391, Korea, Jan. 2011
- [3] [Yuchul Jung](#), Hyunjoo Bae, Byungsun Lee, “Web Service Information Processing Method and Web Service Compositing Method and Apparatus using the same”, 10-2010-0127301, Korea, Dec. 2010.
- [4] [Yuchul Jung](#), Sangki Kim, Byungsun Lee, “Workflow configuration apparatus for composition WEB services and functionality information construction method for creating workflow of the composition WEB service”, 10-2009-0110459, Korea, Nov. 2009.
- [5] Sung-Hyon Myaeng, Heungseon Oh, Kyung-min Kim, Jihee Ryu, Yoonjung Choi, Hogun Park, [Yuchul Jung](#), “System and method for advertising based on context”, 10-2009-0076742, Korea, Aug. 2009
- [6] [Yuchul Jung](#), Sungkooc Lim, Sangki Kim, “The Web Mining based Contextual Knowledge Extraction System and Method and the Context-Aware Mobile Advertising System”, 10-2009-0048197, Korea, June. 2009.
- [7] Sung-Hyon Myaeng, [Yuchul Jung](#), Kyungmin Kim, “The Query/Document Topic Category Transition Analysis System and Method and the Query Expansion based Information

- Retrieval System and Method”, 10-2009-002579, Korea, March. 2009
- [8] Sung-Hyon Myaeng, [Yuchul Jung](#), Yoonjae Jeong, Sungchan Kim, Keunchan Park, “Advertising System and Method Considering Placeness in Mobile Environment”, 10-2008-0119603, Korea, Nov. 2008.

Domestic Patent Registered

- [1] Han Kyoung Soo, Sung-Hyon Myaeng, [Yuchul Jung](#), “An Analysis apparatus for preference, an analysis method thereby, a storage means, an information offering system, an information offering service server, an information offering method and an analysis algorithm for preference”, Korea, July. 2008.
- [2] Sung-Hyon Myaeng, Keunchan Park, [Yuchul Jung](#), Yoonjae Jeong, Sungchan Kim, “Method and System for Recommending Services to User of Mobile Terminal”, 10-2008-0119591, Korea, Nov. 2008. (1007059)
- [3] Sung-Hyon Myaeng, Hogun Park, Gwan Jang, [Yuchul Jung](#), “Personalized Visualization Method for Supporting User’s Information Search”, 10-2008-0119613, Korea, Nov. 2008. (1054050)

US Patent Pending

- [1] Sung-Hyon Myaeng, [Yuchul Jung](#), Kyungmin Kim, Query/Document Topic Category Transition Analysis System and Method and Query Expansion based Information Retrieval System and Method, 12/706826, Feb. 2. 2010.
- [2] [Yuchul Jung](#), Sangki Kim, Byungsun Lee, Apparatus for Creating Workflow of Composition Web Service and Functionality Information Construction Method for Creating Workflow of Composition Web Service, 12/847579, July 30. 2010

Talks and Presentations

- 2011 EasyApp: Goal-driven Service Flow Generator with Semantic Web Service Technologies**, a demonstration at 8th Extended Semantic Web Conference (ESWC 2011), Heraklion, Greece, May, 2011.
- 2011 An Activity Knowledge Base from Multiple Resources: Construction and Utilizations**, a talk at 2011 ICT Workshop on Reasoning with Text, USC Institute for Creative Technologies, Los Angeles, USA, Feb., 2011.
- 2009 Web Mining based OALF Model for Context-Aware Mobile Advertising System**, a regular paper presentation at 4th IEEE/IFIP Int. Workshop on Broadband Convergence Networks (BcN-09), New York, USA. June, 2009.
- 2008 A Web-based Automated System for Industry and Occupation Coding**, a regular paper presentation at 9th Int. Conf. on Web Information Systems Engineering (WISE-08), Auckland, New Zealand. Sep., 2008.
- 2007 Determining Mood for a Web Blog by Combining Multiple Sources of Evidence**, a short paper presentation at IEEE/WIC/ACM Int. Conf. on Web Intelligence (WI-07), Silicon Valley, USA, Nov., 2007.
- 2007 Designing a Cognitive Case-Based Reasoning Framework for Home Service Robots**, a poster paper presentation at 16th IEEE International Symposium of Robot & Human Interactive Communication (RO-MAN), Jeju Island, Korea, Aug., 2007.
- 2007 Integrating Robot Task Scripts with a Cognitive Architecture for Cognitive Human-Robot Interaction**, a regular paper presentation at IEEE Int. Conf. on Information Reuse and Integration (IRI-07), Las Vegas, USA, Aug., 2007.
- 2007 Building a Large-Scale Commonsense Knowledge Base by Converting an Existing One in a Different Language**, a regular paper presentation at Computational Linguistics and Intelligent Text Processing, 8th International Conference (CICLing), Mexico City, Mexico, Feb., 2007.

2006 **A Hybrid Mood Classification Approach for Blog Text**, a short paper presentation at 9th Pacific Rim International Conference on Artificial Intelligence (PRICAI), Guilin, China, Aug., 2006.

Review Services

- **Conferences:** IEEE Int. Conf. on Robotics and Automation (ICRA) and IEEE/RSJ Int. Conf. on Intelligent Robots and Systems (IROS)
- **Journals:** ACM Transactions on Interactive Intelligent Systems (TiiS), Knowledge-Based Systems

References

References are available upon request.