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Last updated: 23rd November 2009

RESEARCH INTERESTS

Ubiquitous computing, context-aware computing, intelligibility, explanations

EDUCATION

Aug 07 – *May 2012 (expected)*	**Ph.D. in Human-Computer Interaction** Human-Computer Interaction Institute, School of Computer Science Carnegie Mellon University, Pittsburgh, PA
Jan – May 08	**BS in Engineering Physics with Minor in Computer Science** Applied & Engineering Physics, College of Engineering Cornell University, Ithaca, NY Summa Cum Laude (GPA: 4.00)

PROJECTS

Oct 09 – Present	**Intelligibility Toolkit** Investigating various types of models (rules, machine learning) used in context-aware applications and explanation generation mechanisms from these models to build extensions to the Context Toolkit to support intelligibility.
Sep 09 – Present	**Laksa – Context-aware mobile application** Developing a Google Android application to support social awareness of the user's contacts to facilitate more appropriate contact choices (e.g. calling, SMS) based on context-sensed availability. We infer availability through rules and learned models from sensors on the Android G1 phone.
Sep 09	**Pressure-Sensitive Keyboard** Participated in a group project submission to the UIST 2009 Student Innovation Contest to create novel applications for a pressure sensitive keyboard (PSK). Our group won for the category of Most Creative for our idea on augmenting the PSK with magnets to provide press action at a distance.
Jun 09 – Sep 09	**Content-based Awareness Display** Helped ran a user study at PARC investigating impact of a content activity-based awareness display on awareness of what the user's colleague is doing, and impact on moderating their intent to communicate. (More details withheld till publication.)
Mar 08 – Sep 09	**IM Autostatus Study** Investigated whether providing intelligibility in a novel IM application can help improve its usability and usefulness. We explored the interaction between intelligibility provision type (None, On Demand, Always On) and application accuracy (Low, High).
Nov 08 – Apr 09	**Intelligibility: Assessing Demand for Intelligibility in Context-Aware Applications** We explored user demand for information and satisfaction due to the corresponding explanations under a range of situations spanning several dimensions for several context-aware applications. We summarize our results as a design recommendation on when to provide certain intelligibility types.
Mar – Sep 08	**Intelligibility: Investigating the Effectiveness of Question Type Explanations** Investigated which types of explanations can improve users' understanding of a decision tree-based system. The types were explanations to the questions: Why, Why Not, How To, What If. We found that users understood the system better with Why and Why Not explanations, the

former being even better.

Jan – May 08 **Digital Stress Bell @ CMU**
For a course, I built a soft, squeezable "stress ball" with physiological sensors, a PSoC microcontroller, and a Bluetooth chip to measure various physiological signals and communicated the information to a computer.

Mar – Apr 08 **Firefly @ CMU**
Investigated people's reaction time to visual stimuli at 7 placements on the body (wrist, upper arm, shoulder, brooch, waist, thigh, foot). We found that people reacted fastest to the wrist, and slowest to the foot. Our findings would inform others who want to deploy wearable displays on various body locations.

Sep – Dec 07 **Pediluma @ CMU**
Investigated the wearing of a small light emitting, shoe-mounted prototype display to motivate physical activity. It provides a light to the public to leverage real-time, physical social influence to motivate people.

Jul 06 – Jul 07 **Spontaneous Interactions Framework @ I^2R**
Developed a framework to support location-based service discovery and invocation through web browsers of commodity mobile devices. It involves aggregating services from sources such as del.cio.us bookmarks, UPnP devices, OSGi bundles, and UPnP Media content. The services can subsequently be accessed by a human-readable user interface, or by reasoning engines to provide higher-order services.

Jan – Jul 06 **Groupmeter**
With engineers in Cornell, I collaborated with designers at the Parsons New School of Design, to build the first version of Groupmeter. Groupmeter supports group collaborations by providing peer and linguistic feedback. I implemented the IM bot to capture chat transcripts, and the rich internet application 'dashboard' through Flash Remoting.

Jan – May 06 **Innkeepe: B&B and Small Hotels property management system**
Led a Software Engineering course project from feasibility study, requirements, design, implementation and delivery with a group of 6 students. I designed the middleware architecture and wrote most of the documentation for the project. The project employed J2EE and AJAX.

Aug – Dec 05 **Hidden Treasures, Virtual Tour Guide for the Cornell Campus**
Implemented the Geographical Information System (GIS) server to serve maps to the mobile clients.

Jun – Aug 04 **Pointus – Summer internship at the Context-Aware Systems Department,**
Institute for Infocomm Research, Singapore Extended PointRight 2 (IWorks, Stanford) to the mobile platform, by doing a partial port to Java.

PROFESSIONAL EXPERIENCE

Jun – Sep 09 **Internship at Palo Alto Research Center (PARC)**
Worked with Victoria Bellotti and Oliver Brdiczka on designing and running a user study to test the effectiveness of a content-based social awareness display.

Jul 06 – Jul 07 **A*STAR 1-year (2006/07) Research Attachment at the Institute for Infocomm Research (I^2R)** *(see above)*
Position held: Research Officer

Oct 06 – Jul 07 **A*STAR SERC Fusionopolis Publicity Team**
I am involved with a team of A*STAR scholars to help with the effort to market the Fusionopolis research complex for the next three years, publicizing it to the public, industry and the research community.

Mar 07 **A*STAR JC Science Award Interview Panel**
I was on the panel interviewing high school students for a scholarship covering tuition, an allowance, and providing an opportunity to do research at A*STAR's Research Institutes

Nov 06 – Feb 07 **A*STAR Corporate Planning Exercise (CPE) 2007**
I was involved with a team of A*STAR senior management and scholars discussing on one of the

topics part of the CPE. I also served as the emcee for the event.

Nov 06 – Mar 07 **A*STAR EXPLOSION Publication Scientific Resource Panel**
I am involved with a team of A*STAR scientists from multiple research institutes to assist with the publication of the 15th issue of the EXPLOSION publication on the topic of Human Factors Engineering.

Jun – Jul 06 **HCI Lab, Cornell University**
Tied up the loose ends in the GroupMeter project, by clearing remaining bugs in other areas (such as the administration module) and completing the documentation for proper handover to a future team.

Jun – Aug 04 **A*STAR Summer (2004) Research Internship at I²R** *(see above)*

Jul – Aug 03 **A*STAR Summer (2003) Research Internship at I²R** *(see above)*

Jan 01 – May 03 **42 Singapore Armoured Regiment, Singapore Army**
I operated a main battle tank during my military service. My service also involved other activities involving infantry and administrative work.

TEACHING EXPERIENCE

Aug 09 – Dec 09 **Human-Computer Interaction Methods (05-610), Teaching Assistant**

Dec 06 – May 07 **Ministry of Education, Scientist-in-School Program**
With another A*STAR scholar, we conducted a 4-week workshop on an Introduction to Programming (in Java), under the Ministry of Education – Scientists in Schools programme, for first-year students at Anderson Junior College.

OTHER ACTIVITIES / PERSONAL PROJECTS

Sep 08 – Present ***Oakland International Fellowship website*** – Working on a team to develop the new website of my church in Pittsburgh.

Jan – Aug 07 ***A*STAR Scholarship Video 2007 –*** Directed and produced the A*STAR Scholarship Video for 2007 with a crew of 5 fellow scholars.

Mar 07 – Present ***Emmanuel Baptist Fellowship website –*** Designed and still maintaining the website of my church in Singapore.

Dec 06 – Jun 07 ***Pigsonomy*** – Developed a Web 2.0 and tagsonomy-based website to showcase my collection of plush.

May 01 – Dec 03 ***ShapeShifter*** – A graphing program, to plot functions with parameters, to see how the graphs change as certain parameters are altered.

Dec 03 – May 04 ***Oinkily.net*** – Developed a personal website, explore rendering XML webpages on a browser using XSLT and CSS.

2002 ***Softwaterworks.com*** – This server-side driven website was developed to publicize ShapeShifter using through a website.

Apr 04 – May 05 ***Cornell Society of Physics Students, webmaster*** – Designed and maintained a previous iteration of the website.

FELLOWSHIPS / SCHOLARSHIPS

2007 – 2012 A*STAR NSS(Ph.D.) Scholarship

2003 – 2006 A*STAR NSS(BS) Scholarship

AWARDS

2009 CHI 2009: Nominated for best long paper

2004, 2006 A*STAR Chairman's Honour List

2003 – 2006 Cornell University Dean's list

2000 XXXI International Physics Olympiad, Honorary Mention

1999 12th Singapore Physics Olympiad, Honorable Mention

1999 1999 Technology and Engineering Research Programme, Nanyang Technological University – First Runner-Up Project Team

ORGANIZATIONS

Mar 08 – Mar 09	ACM Member
Apr 07 – Dec 07	IEEE Member
2005	*Tau Beta Pi* Honor Society, Cornell Chapter, Life Member

SERVICE

2009	CHI 2009, technical paper reviewer
	CSCW 2009, technical paper reviewer
2008	CHI 2008, student volunteer
2007	Ubicomp 2007, technical paper reviewer

SKILLS

Computing	Java, J2EE, XML, HTML/CSS, Javascript, UML, C/C++, MATLAB, SQL, PHP, PICAXE, Arduino Physical Prototyping Board, LabVIEW, BASIC, CVS, Linux, LaTeX, Assembly, Flash Actionscript, Wordpress
Behavioral Sci.	Survey writing, Statistical Analysis of Behavioral and Non-Behavioral Measures, JMP
Physics	Mathematical Physics, Advanced experimental lab, Circuits, Quantum mechanics, Fluids, Statistical mechanics, Electrodynamics, Mechanics, Special relativity, Waves
Art	'O' Levels (A+), 1 semester in college painting, Video editing (Sony Vegas, Windows Movie Maker), Raster graphics / Photo editing (GIMP, Adobe Photoshop), Vector image editing (Open Office Draw , Adobe Illustrator), Audio editing (Audacity)

INTERESTS

Human-Computer Interactions, Software Engineering, Information Science, Photography, Skiing, Website development, Video editing

PUBLICATIONS

Peer reviewed conferences

[C.7] **Lim, B. Y.**, Dey, A. K. Assessing Demand for Intelligibility in Context-Aware Applications. In Proceedings of the 11th international Conference on Ubiquitous Computing (Orlando, Florida, USA, September 30 - October 03, 2009). Ubicomp '09. ACM, New York, NY, 195-204. DOI= http://doi.acm.org/10.1145/1620545.1620576.

[C.6] **Lim, B. Y.**, Dey, A. K., and Avrahami, D. 2009. Why and why not explanations improve the intelligibility of context-aware intelligent systems. In Proceedings of the 27th international Conference on Human Factors in Computing Systems (Boston, MA, USA, April 04 - 09, 2009). CHI '09. ACM, New York, NY, 2119-2128. DOI= http://doi.acm.org/10.1145/1518701.1519023

[C.5] Harrison, C., **Lim, B. Y.**, Shick, A., and Hudson, S. E. 2009. Where to locate wearable displays?: reaction time performance of visual alerts from tip to toe. In Proceedings of the 27th international Conference on Human Factors in Computing Systems (Boston, MA, USA, April 04 - 09, 2009). CHI '09. ACM, New York, NY, 941-944. DOI= http://doi.acm.org/10.1145/1518701.1518845

[C.4] **Lim, B. Y.**, Zhang, D., Zhu, M., Zheng, S. (2007). Context-Aware Framework for Spontaneous Interaction of Services in Multiple Heterogeneous Spaces. Proceedings of ICME 2007.

[C.3] Zhu, M., Zhang, D., Zhang, J., **Lim, B. Y.** (2007). Context-Aware Informative Display. Proceedings of ICME 2007.

[C.2] **Lim, B. Y.**, Zhang, D., Zhu, M., Zheng, S. (2007). Context-Aware Spontaneous Interaction Framework to Aggregate and Access Services in Multiple Heterogeneous Spaces. Proceedings of UIC 2007.

[C.1] D. Zhang, B. Lim, M. Zhu, S. Zheng. Supporting Impromptu Service Discovery and Access in Heterogeneous Assistive Environments. In Proceedings of ICOST 2007.

Workshops

[W.1] **Lim, B.Y.**, Shick, A., Harrison, C. Personal-Public Displays: Motivating Behavior Change through Ambient Information and Social Pressure. CHI 2008 Workshop on Ambient Persuasion.

Posters / Works-in-Progress

[P.1] Diamant, E. I., **Lim, B. Y.**, Echenique, A., Leshed, G., and Fussell, S. R. 2009. Supporting intercultural collaboration with dynamic feedback systems: preliminary evidence from a creative design task. In Proceedings of the 27th international Conference Extended Abstracts on Human Factors in Computing Systems (Boston, MA, USA, April 04 - 09, 2009). CHI EA '09. ACM, New York, NY, 3997-4002. DOI= http://doi.acm.org/10.1145/1520340.1520607