Angelica Lim

Summary

- Award-winning researcher in artificial intelligence, robotics and emotion
- Specialist in signal processing & multimodal machine learning for human-robot interaction
- Well-rounded programmer with >10 years robotics experience across 3 continents

Education

Kyoto University, Japan *2012 – 2014*

- Ph.D., Dept. of Intelligence Science and Technology, Graduate School of Informatics
- Thesis title: "MEI: Multimodal Emotional Intelligence"

Kyoto University, Japan *2010-2012*

- M. Sc., Dept. of Intelligence Science and Technology, Graduate School of Informatics
- Example courses: Advanced artificial intelligence (A+), Speech processing (A+), Visual interaction (A+), Language processing (A+)
- Thesis title: "Design and Implementation of Emotions for Humanoid Robots based on the Modality-independent DESIRE Model"

Simon Fraser University, Canada *2001-2008*

- B. Sc. in Computing Science, Artificial Intelligence concentration, Honor roll
- French Extended Minor, Linguistics concentration

Université de Nice Sophia-Antipolis, France *2005 - 2006*

- Selected courses, 3rd year Licence Informatique (taught in French)

Journal publications
(peer-reviewed)

1. A. Lim and H.G. Okuno, A Recipe for Empathy: Integrating the Mirror System, Insula, Somatosensory Cortex and Motherese, Springer International Journal of Social Robotics, 2014
2. A. Lim and H.G. Okuno, The MEI Robot: Towards Using Motherese to Develop Multimodal Emotional Intelligence, Transactions of Autonomous Mental Development, IEEE Transactions of Autonomous Mental Development, 2014
3. A. Lim and H.G. Okuno, Towards expressive musical robots: A cross-modal framework for emotional gesture, voice and music, EURASIP J. on Audio, Speech Music Processing, 2012:3
4. T. Itohara, T. Mizumoto, T. Otsuka, A. Lim, T. Ogata, H.G. Okuno, A multimodal tempo and beat-tracking system based on audiovisual information from live guitar performances. EURASIP J. Audio, Speech and Music Processing 2012:6
5. A. Lim et al., A musical robot that synchronizes with a co-player using non-verbal cues, Advanced Robotics, Special Issue on Cutting Edge of Robotics in Japan, Sep. 16, 2011.
6. リム アンジェリカ, 水本 武志, 大塚 琢馬, 古谷 ルイ賢造, 尾形 哲也, 奥乃 博: 音楽共演ロボット: 開始・終了キューの画像認識による人間のフルート奏者との実時間同期, 情報処理学会論文誌, Vol.52, No.12 (Dec., 2011) 採録決定, Sep. 13, 2011.

Conference publications
(peer-reviewed)

1. A. Lim & H.G. Okuno, A model for human empathy based on a neuroscience-inspired emotional robot: Motherese, mirror neurons, the insula and somatosensory corticies, HRI: a bridge between Robotics and Neuroscience, HRI Workshop 2014
2. A. Lim & H.G. Okuno, Using speech data to recognize emotion in human gait, Human Behavior Understanding, IROS Workshop 2012
3. A. Lim, T. Ogata, & H.G. Okuno, Converting emotional voice to motion for robot telepresence, Humanoids 2011 (accepted as oral, acceptance rate 17.4%)
4. A. Lim et al., More cowbell! A musical ensemble with the NAO thereminist, IROS 2011 Demonstration Session (Also selected for oral symposium – best 12 proposals out of 23)
5. A. Lim et al., Robot musical accompaniment: Integrating audio and visual cues for real-time synchronization with a human flutist, IROS 2010 NTF Award for Entertainment Robots
6. A. Lim et al., Programming by playing and approaches for expressive robot performances, IROS 2010 Workshop on Robots and Musical Expression

Service

Guest Editor, International Journal on Synthetic Emotions *Jan '12 – July 12*
Special Issue on Robots, Music and Emotions

Webmaster and Newsletter Editor, Digital Eve Japan *May '09 – Mar '11*
www.digitalevejapan.org
- Developed English/Japanese website. Wrote and edited monthly articles to 300 members

President of Computing Science Student Society (CSSS) and Women in CS (WICS) *May '03 - May '05*
Simon Fraser University
- Established WICS as first president; support group & workshops still active 9 years later
- Led dozens of volunteers to establish first Frosh Week & Chictech girls tech competition

Honours

- **TEDxKuala Lumpur 2014** speaker *2014*
- **CITEC Award** for Excellence in HRI Doctoral Research, HRI 2014 *2014*
- **Cortona Summer School** on Agent-based models of Creativity, Best Poster *2013*
- **TEDxKyoto 2012** speaker *2012*
- **Information Processing Society of Japan** Student Award *2012*
- **IROS 2010 NTF Award for Entertainment Robots and Systems** ($1000) *2010*
- **Monbukagakusho Scholar** ($115,000 over 6 years) *2008*
- **Google Canada Anita Borg** Memorial Scholarship ($5000) *2008*
- **NSERC Undergraduate Student Research** Award ($4500) *2007*
- **Elma Krbavac** Scholarship in Computing ($2200) *2007*
- **IEEE Distinguished Service in a Pre-College Environment** Award ($1000) *2006*
- **Canadian Federation of University Women** Award ($1000) *2006*

Work Experience

Software Engineer, Expressivity Team Lead *Aug '14 - present*
Aldebaran Robotics, Paris
- Product owner and developer on emotion recognition module on Pepper robot , lead team of 8 members

Visiting Researcher *April '13 - July '14*
Honda Research Institute, Japan, Wako Branch
- Emotional sound processing with HARK and NAO, in collaboration with Kyoto University
- Developed new models & implementations for multimodal emotion representation, recognition & expression, using a machine learning + developmental robotics approach
- Recruited over 40 Japanese and Western participants and ran in-person experiments to validate models

Research Assistant, Musical co-player robots *Sept. '09 - present*
Speech and Media Processing Lab, Kyoto University, Japan with Prof. Hiroshi G. Okuno
- Created an interactive music robot (HRP-2 and NAO) that responds to sound and gestural cues, using C++ and Python with ROS as middleware.
- Teaching assistant for HARK robot audition system for online and in-person tutorials.

Journalist *Jan. '12-present*
IEEE Spectrum Automaton Robotics Online Magazine
- One of four official contributors worldwide for award-winning Automaton Magazine

User Experience Manager *July '12 - April '13*
Aldebaran Robotics Japan
- Designed and programmed initial interactive behaviors on Pepper robot, launched June 2014
- Trained first SoftBank Robotics employees in robotics development, now >100 employees
- Main client-facing representative of Aldebaran in Japan, one of first two employees.
- A NAO owner and NAO Developer Program participant since March 2011

Research Intern, Robot audition *Aug- Sep '10, '11*
Honda Research Institute, Japan with Prof. Kazuhiro Nakadai
- Multi-modal data fusion for musical instrument recognition using Gaussian Mixture Model approach with ROS, OpenCV & HARK.
- Developed a Kalman Filter cue prediction method for multi-robot, multi-human ensemble

Software Engineering Intern *Sept '08 - Dec '08*

Google, Santa Monica, USA

- Very large dataset processing for Ads Team (MapReduce, C++, Python, Shell scripts)
- Implemented unit or end-to-end tests (gUnit and PyUnit) for all code written
- Led team of Googlers to teach computing to 4th graders; volunteered with Meals on Wheels

NSERC Undergraduate Student Researcher *Jan '08 - Apr '08*

Vision and Media Lab, Simon Fraser University, Canada with Prof. Greg Mori

- Achieved up to 33% accuracy reading Hotmail CAPTCHA images automatically
- Used machine learning and image processing techniques coded in MATLAB, Python and Lisp

Research Intern, Underwater Robotics *Jan '07 - July '07*

Laboratoire d'Informatique, Signaux et Systèmes de Sophia Antipolis, CNRS with Prof. Joao Rendas

- Developed a C++ image-based reactive controller for an autonomous underwater vehicle
- Architectured, implemented and tested a heterogeneous data server in C and C++, designing common API for MS Robotics Studio simulator and micro-controller

Others: SFU Recruiter and Communications Specialist (webpage design and outreach presentations, 8 months); Chevron Canada IT Helpdesk Analyst (In-house PC troubleshooting, 8 months)

Relevant Skills

Programming/Markup Languages: Proficiency in C++, Python, C, Java, MATLAB, XHTML/CSS, shell scripting, LaTeX. Working knowledge of XML, SQL, PHP, Visual Basic, Lush/Lisp
Robotics: Naoqi, Choregraphe, ROS, networking, Player/Gazebo, MS Robotics Studio
Languages: Native English, Fluent in French. Advanced Japanese. Basic Tagalog.
Interests: Improvised comedy, flute, singing, running