

YEN-LING KUO

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EDUCATION

- 2016/09 – Present **Massachusetts Institute of Technology**, Cambridge, MA
Ph.D. Student in Electrical Engineering and Computer Science
- 2009/09 – 2012/01 **National Taiwan University**, Taipei, Taiwan
M.S. in Computer Science and Information Engineering (CSIE)
• Thesis: A Multiagent Reasoning System for Commonsense Knowledge Integration
- 2011/09 – 2011/12 **Massachusetts Institute of Technology**, Cambridge, MA
Visiting Student in Media Arts and Sciences
- 2005/09 – 2009/06 **National Taiwan University**, Taipei, Taiwan
B.S. in Computer Science and Information Engineering, minor in Physics

RESEARCH EXPERIENCE

- 2016/09 – Present **InfoLab, MIT CSAIL** Advisor: Dr. Boris Katz
• **Planning with Sequential Model:** Creating a motion planner which integrates time-series model and planning to extend robot's capability to plan in dynamic environments and in the presence of other agents.
• **Inferring Theory of Mind with Vision and Language:** Building a vision and language system which understands other human agents' intent from the interpretation of visual perceptions.
• **Understanding the Influence of Danger/Risk in Human Planning:** Developing psychophysical experiments and computational models to understand how human/children plan and their beliefs when there are risks in an environment.
- 2011/09 – 2011/12 **Software Agent Group, MIT Media Lab** Advisor: Dr. Henry Lieberman
• **Language Explorer:** Created a mobile language learning app that adapts to a learner's context and capability by leveraging ConceptNet and Foursquare to automatically arrange materials and generate dialogues.
• **ConceptNet 5:** Participated in the early design and implementation of the multilingual knowledge base (ConceptNet 5) to integrate data from Chinese ConceptNet, ReVerb, and GoalNet. The knowledge base is widely used in many AI projects worldwide.
- 2008/06 – 2012/01 **Intelligent Agents Lab, NTU CSIE** Advisor: Prof. Jane Yung-jen Hsu
• **Multi-agent Reasoning System:** Built a multi-agent system to provide commonsense reasoning results from multiple knowledge bases for application developers to use. [1]
• **Bridging Chinese and English Commonsense Knowledge:** Designed algorithms that create analogies between Chinese and English commonsense knowledge and generate new questions for crowd-sourcing. [2,4]
• **Human Computation for Knowledge Acquisition:** Created human computation algorithms and games on social platforms to build the largest Chinese commonsense

knowledge base (over one million sentences) in the world. The collected data is contributed to MIT Open Mind Common Sense project. [3,5]

WORK EXPERIENCE

- 2012/10 – 2016/08 **Software Engineer**, *Google Inc.* Mountain View, CA
- Tech Lead for Shop the Look feature, which integrates outfit search and visually similar items to Google search. (*posts on [Google AdWords blog](#) and [TechCrunch](#)*)
 - Developing advanced shopping search features, including analysis and creation of various UIs, to better respond to shopping queries/intents on different platforms.
 - Developed machine learning algorithms and crowd-sourcing infrastructure to extract product attribute from image content and product metadata.
- 2011/06 – 2011/08 **Software Engineering Intern**, *Google Inc.* Kirkland, WA
- Developed algorithms and pipeline to automatically build entity attribute comparison table for any entity using large-scale crawled web data.
 - Won **Third Place** in Google Kirkland intern project showcase among 20+ interns.
- 2010/02 – 2011/05 **Teaching Assistant**, *National Taiwan University* Taipei, Taiwan
- Courses: *Artificial Intelligence*, *Advanced Artificial Intelligence*
 - Held weekly TA hours to discuss class, homework, and term projects with students.
 - In charge of both written and programming assignments for over 100 students.

SELECTED PUBLICATIONS

JOURNAL PAPER

- [1] **Yen-Ling Kuo** and Jane Yung-jen Hsu. Planning for Reasoning with Multiple Common Sense Knowledge Bases. *ACM Transactions on Interactive Intelligent Systems (TiiS-2012)*, Vol. 2, No. 3, Article 17, pp. 1-24, September 2012. ([pdf](#))

CONFERENCE PAPERS

- [2] **Yen-Ling Kuo** and Jane Yung-jen Hsu. Resource-bounded Crowd-sourcing of Commonsense Knowledge. In *Proceeding of the 22nd International Joint Conference on Artificial Intelligence (IJCAI-2011)*, pp. 2470-2475, July 2011. ([pdf](#))

WORKSHOP PAPERS

- [3] **Yen-Ling Kuo**, Jane Yung-jen Hsu, and Fuming Shih. Contextual Commonsense Knowledge Acquisition from Social Content by Crowd-sourcing Explanations. In *Proceeding of 2012 AAAI Workshop on Human Computation (HCOMP-2012)*, pp. 18-24, July 2012. ([pdf](#))
- [4] **Yen-Ling Kuo** and Jane Yung-jen Hsu. Bridging Common Sense Knowledge Bases with Analogy by Graph Similarity. In *Proceeding of 2010 AAAI Workshop on Collaboratively-Built Knowledge Sources and Artificial Intelligence (WikiAI-2010)*, pp. 20-25, July 2010. ([pdf](#))
- [5] **Yen-Ling Kuo**, Kai-yang Chiang, Cheng-wei Chan, Jong-Chuan Lee, Rex Wang, Edward Shen, and Jane Yung-jen Hsu. Community-based Game Design: Experiments on Social Games for Commonsense Data Collection. In *Proceeding of 2009 KDD Workshop on Human Computation (HCOMP-2009)*, pp. 15-22, June 2009. ([pdf](#))

SELECTED PROJECTS

- 2016/10 - Present **ScienceVR: Science Experiments in VR**
Developing an environment that allows users to build and perform science experiments in virtual reality. With real-time physics simulation, users can interact with virtual magnets and coils and watch the visualization of the simulated magnetic fields ([demo video](#)).
 - Finalist of 2016 AT&T AR/VR Challenge.
 - Was invited to the VR Screening in Marche Du Film, Cannes Film Festival, in 2017.
- 2013/01 – Present **MovISee: Timeline-based Visualization with Body Movement**
Developing a digital platform that uses information from depth camera to create mixed reality for people to explore the selected digital files/streams and transform their body movements to customized visual outputs. Demos available at <http://movisee.com>.
 - Was invited to exhibit at “The Lab Project” in Camden Arts Centre and Kingsgate Studio, London, in 2015.
 - Was invited to exhibit at “Manchester Science Festival”, Manchester, UK, in 2016.
- 2010/04 – 2011/07 **Flora: Mobile Flower Image Recognition Service**
Developed an iPhone app that recognizes flower photos taken by general public to provide information of flowers in 2010 Taipei International Flora Exposition ([demo video](#)).
 - Winner of **2010 Hinet Telesoft Competition** and **8th YuShow Cup Creativity Award**.

HONORS & AWARDS

- 2016 **MIT Greater China Computer Science Fellowship**, *Massachusetts Institute of Technology*
- 2016 **Finalist**, *AT&T AR/VR Challenge*
Invited to demo at 2017 AT&T developer summit in Las Vegas among 67 submissions.
- 2012 **Best Master Thesis Award**, *Taiwanese Association of Artificial Intelligence (TAAI)*
Awarded annually to three master students for Best Thesis in AI research among all universities in Taiwan.
- 2011 **Irving T. Ho Memorial Scholarship**, *Irving T. Ho Memorial Foundation*
Awarded annually to one EE/CSIE graduate student with exceptional research performance who has been selected by NTU as an overseas exchange student.
- 2011 **Third Place**, *Google Kirkland Intern Project Showcase, Google Inc.*
Awarded to the top three intern projects among 20+ interns.
- 2011 **Google Anita Borg Memorial Scholarship**, *Google Inc.*
Awarded to female students with outstanding academic performance and leadership demonstration.
- 2011 **Gold Prize**, *8th YuShow Cup Creativity Award*, Taiwan
Awarded for Best Application in Technology and Design among 700+ projects across all universities.
- 2010 **First Place**, *2010 Hinet Telesoft Competition - Flora Expo Application Track*, Taiwan
Awarded for Best Application of Technology in Flora Expo among 600+ teams.
- 2010 **Outstanding Teaching Assistant Award**, *Department of CSIE, NTU*
Awarded to CSIE Teaching Assistants with highest ratings from students.

LEADERSHIP & ACTIVITIES

- 2017/08 **Teaching Assistant**, *Brains, Minds, and Machines Summer Course*
- Supervised 4 student projects, including human plan understanding, multiagent coordination, better tracing for bio-inspired drones, and recurrent neural network for social network simulation.
 - Taught Deep Learning tutorial.
- 2016/08 **Student**, *Brains, Minds, and Machines Summer Course*
- 2015/10 **Participant & Google Interviewer**, *Grace Hopper Celebration of Women in Computing*
- 2014/10 – 2016/08 **Website Developer**, *San Francisco Bay Area Taiwan UXD Gathering*
- 2013/01 – 2016/09 **Tech Intern Mentor & Interviewer**, *Google Inc.*
- Weekly career discussion with mentees; hosted 1 PhD and 6 undergraduate interns.
 - Conducted 80+ technical interviews to hire qualified engineers.
- 2011, 2013 **Reviewer** of *ACM IUI (Intelligent User Interface) 2013, TAAI 2011*
- 2007/07 – 2008/07 **President**, *AIESEC (International Association of Students in Economics and Management, <http://aiesec.org>) National Taiwan University Local Committee*
- Initiated an overseas internship program based on social issues for NTU students.
 - Hosted a leadership development conference for 14 universities in Taiwan and Asia Pacific countries in June 2008.
 - Led more than 100 members to win the 2007-2008 **Best Local Committee Award**.

SKILLS

Programming Languages	C/C++, Python, Java, JavaScript, PHP, C#
Tools and Libraries	NLTK, OpenCV, OpenGL, Matlab, Robot Operating System, Processing, Unreal, Unity, Max/MSP
Hardware Platforms	Kinect, Raspberry Pi, Arduino, Intel Edison