

# Sanghyun Yi

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<b>RESEARCH INTERESTS</b>	Theoretical neuroscience, decision-making, reinforcement learning, neural decoding, biologically plausible learning, deep learning and brain-inspired AI.	
<b>EDUCATION</b>	PhD student, <b>Caltech</b> , Pasadena, USA ▪ Social and Decision Neuroscience	Sep 2018 – Present
	BS, <b>Seoul National University</b> , Seoul, Korea ▪ College of Liberal Studies ▪ Major: Mathematics ▪ Minor: Computer Science, Statistics	Mar 2011 – Feb 2018
<b>RESEARCH EXPERIENCE</b>	<b>Alexa Machine Learning</b> , Amazon Lab126 ▪ Applied Scientist Intern ▪ Project: Building coherent and engaging conversational models by adding conversation evaluators. ▪ Research areas: natural language processing, conversational AI.	Mar 2018 – Aug 2018
	<b>Laboratory for Brain and Machine Intelligence</b> , KAIST ▪ Undergraduate Research Intern ▪ Project: Manipulating human's prediction error for human optimization using a reinforcement learning agent. Meta-controlling the model-based and model-free controllers to mimic the decision making strategy of human. Optimizing explorations of a reinforcement learning agent by modeling uncertainties of environments. ▪ Supervisor: Professor Sangwan Lee ▪ Research areas: Reinforcement learning, computational neuroscience, human optimization.	Jun 2017 – Feb 2018
	<b>Machine Intelligence Lab</b> , Seoul National University ▪ Undergraduate Research Intern ▪ Project: Building parallel English-Korean-Chinese corpora and designing a neural net based machine translation model. ▪ Designed a bilingual sentence alignment algorithm based on length, word representational vectors and dictionary information. ▪ Proposed a CNN based encoder in attention based encoder decoder model. ▪ Supervisor: Professor Kyomin Jung ▪ Research areas: Machine translation, deep learning, natural language processing.	Jan 2016 – Dec 2016
	<b>Natural Language Processing Group</b> , MIT ▪ Undergraduate Research Intern ▪ Project: Building graph on co-working relationship among MIT faculties. ▪ Supervisor: Professor Regina Barzilay ▪ Research areas: Natural language processing	Jun 2011 – Aug 2011

## PUBLICATIONS

- [1] Sanghyun Yi, Chandra Khatri and Rahul Goel, “Towards Coherent and Engaging Spoken Dialog Response Generation Using Automatic Conversation Evaluators”, 2019. (submitted)
- [2] Chihyung Jeon , Hanbyul Jeong , Heesun Shin , Heewon Kim , Sungeun Kim and Sanghyun Yi, “Can AI Read Your Politics?? Social and Ethical Implications of Artificial Political Intelligence”, in *When Robots Think. Interdisciplinary Views on Intelligent Automation*, Münster, Germany, 2018.
- [3] Sanghyun Yi, Jeehang Lee, Changhwa Lee, Juno Kim, Sujin An and Sangwan Lee, “A Competitive Path to Build Artificial Football Agents for AI Worldcup”, in *IEEE/IEIE International Conference on Consumer Electronics (ICCE) Asia*, Jeju, Korea, 2018.
- [4] Sanghyun Yi, Jeehang Lee and Sangwan Lee, “Maximally separating and correlating model-based and model-free reinforcement learning”, in *Computational and Systems Neuroscience (Cosyne)*, Denver, USA, 2018.
- [5] Sanghyun Yi and Kyomin Jung, “A Chatbot by Combining Finite State Machine, Information Retrieval, and Bot-Initiative Strategy”, in *1st Proceedings of Alexa Prize (Alexa Prize 2017)*, Las Vegas, USA, 2017.

## ACADEMIC AWARDS

- **National Scholarship for Science and Engineering**, Korea Student Aid Foundation 2011 – 2016  
Full tuition & fee.  
For outstanding academic performance.
- **Semifinalist, The Alexa Prize** Aug 2017  
10th place among 18 semifinalists which include 12 sponsored teams.  
I was the de facto leader of the team, which was unsponsored and was the only semifinalist team from Asia.
- **3rd place, Nvidia Deep Learning Contest** Oct 2016  
Achieved 85.1% accuracy on food image classification.  
The only undergraduate awardee.
- **3rd place, AI World Cup 2017** Dec 2017  
1st place at the preliminary league and 3rd place at the final tournament where the top 4 teams of the preliminary participated in. Awarded approx \$1500.  
Had a talk about the result at The 5th International Conference on Robot Intelligence Technology and Applications(RiTA).

## EXTRA-CURRICULAR ACTIVITIES

- The Alexa Prize**, Amazon Sep 2016 – Aug 2017
  - Semifinalist, the de facto team leader
  - The goal of the competition was to develop a chatbot that can interact with people freely on social issues.
  - I designed all the structures and algorithms of the bot.
  - My team was 10th place among 18 semifinalists which included 12 sponsored teams.
  - More than 100 teams from leading universities in 22 countries participated in the competition and my team was an unsponsored semifinalist.
  - Our team was the only semifinalist team from Asia.
- CLOVA AI idea challenge**, Naver-Line Jul 2017 – Aug 2017
  - Individual finalist
  - I designed an application for practicing speaking Korean using ASR which is used on a virtual assistant named CLOVA by Naver-Line corporation.
  - Awarded approx \$2K
- Computational Neuroscience Winter School**, Korean Society for Computational Neuroscience Feb 2017
  - Excellence Prize Winner
  - I developed an algorithm to decode neural signals of motor cortex.
- SNU Tensorflow club**, Seoul National University Oct 2016 – Aug 2017
  - Member
  - Weekly seminar on deep learning and tensorflow.
  - Members include leading AI researchers from Naver, KaKao, Samsung, LG, Intel and etc.
- Liberatory**, Seoul National University Mar 2012 – Oct 2013
  - Cofounder
  - Weekly seminar on scientific topics.
  - I organized lab tours and workshops

**Waffle Studio**, Seoul National University Apr 2012 – Oct 2013

- Member
- Web service developers club.

**SPIN(ballroom dance club)**, Seoul National University Apr 2011 – Sep 2015

- Executive
- I organized and performed numerous public shows and won prizes in competitions.

**MILITARY  
SERVICE**

**259 Company, 5th Task Force**, Seoul Metropolitan Police Agency Oct 2013 – Jul 2015

- National Police Company Commander (Sergeant)
- Mandatory military service.
- I led a company of police about 100 members.
- I was awarded commendations from the Seoul Metropolitan Police Agency Commissioner General and the superintendent of Gangbuk police station for my achievements during the service.

**CITIZENSHIP**

United States of America & Republic of Korea

**LANGUAGES**

- English: fluent.
- Korean: native language.
- Chinese, Japanese: basic.

**SKILLS**

Tensorflow, PyTorch, Python, R, C/C++, Fortran, Ocaml, Java, HTML,  $\LaTeX$ .

*[CV compiled on 2019-01-24]*