SHANGMIN (SHAWN) GUO

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PUBLICATIONS

- The Emergence of Compositional Languages for Numeric Concepts Through Iterated Learning in Neural Agents
  Shangmin Guo, Yi Ren, Serhii Havrylov, Stella Frank, Ivan Titov & Kenny Smith
  　　　　　3rd NeurIPS Workshop on Emergent Communication

- Enhance the Compositionality of Emergent Language by Iterated Learning
  Yi Ren, **Shangmin Guo**, Matthieu Labeau, Shay B. Cohen & Simon Kirby
  　　　　　3rd NeurIPS Workshop on Emergent Communication

- IJCNLP-2017 Task 5: Multi-choice Question Answering in Examinations
  Shangmin Guo, Kang Liu, Shizhu He, Zhuoyu Wei, Cao Liu & Jun Zhao
  　　　　　　　　　　　　　　　　　　　　IJCNLP-2017

- Which is the Effective Way for Gaokao: Information Retrieval or Neural Networks?
  Shangmin Guo, Xiangrong Zeng, Shizhu He, Kang Liu & Jun Zhao　　EACL-2017

- Employing External Rich Knowledge for Machine Comprehension.
  Bingning Wang, **Shangmin Guo**, Kang Liu&Jun Zhao　　　　　IJCAI-2016

PENDING PUBLICATIONS

- The Emergence of Compositional Languages for Numeric Concepts Through Iterated Learning in Neural Agents
  　　　　　　　　　　　　　　　　accepted by EvoLang-2020

- Compositional languages emerge in a neural iterated learning model
  　　　　　　　　　　　　　　　　accepted by ICLR-2020

PROJECTS

SpikeInterface: A Unified Framework for Spike Sorting
📅 Sep. 2019 –　　　　　　　　　　　📍 Edinburgh, UK

- Perform unit testing and integrated testing, and fix the detected bugs.
- Proposed a Bayesain algorithm to combine sorting results from different spike sorters.
- This is an open-source project which can be accessed https://github.com/SpikeInterface.

Emergence of Compositional Languages for Numeric Concepts in Multi-agent Autonomous Communication
📅 Jan. 2019 – Sep. 2019　　　　　　📍 Edinburgh, UK

- This is my master dissertation project, and can be accessed at https://arxiv.org/pdf/1911.01098.pdf.
- Proposed this project to explore the emergence of compositional languages for numeric concepts in multi-agent communication protocols.
- Designed and implemented multi-agent population models based on deep learning, as well as two different language games.
- Found that iterated learning could facilitate the emergence of compositional language, and their emergence are heavily influenced by input representations.
- Found that emergent languages from different language games have different expressivity.
- This work has been submitted to EvoLang-2020 and ICLR-2020.

WORKING EXPERIENCE

Research Assistant
Department of Computer Science and Technology, University of Cambridge
📅 Nov. 2019 –　　　　　📍 Cambridge, UK

Research Assistant
Institute for Adaptive and Neural Computation, School of Informatics
📅 Sep. 2019 – Nov. 2019　📍 Edinburgh, UK

Research Engineer
National Laboratory of Pattern Recognition
📅 Oct. 2015 – Aug. 2018　📍 Beijing, China

EDUCATION

M.Sc. (Distinction) in Data Science
Avg Score: A
The University of Edinburgh
📅 Sep. 2018 – Aug. 2019　📍 Edinburgh, UK

B.Eng. in Computer Science
Rank:1st/66 |GPA:3.88/4.0|Avg Score:87.20/100
National University of Defense Technology
📅 Sep. 2010 – Jun. 2014　📍 Changsha, China

RESEARCH INTERESTS

Multi-agent Communication

Evolutionary Linguistics

Grounded Language Learning

Natural Language Understanding

PROGRAMMING SKILLS

Python/PyTorch/LaTeX
C++/Java/Django/Qt5
Distributed Computing
CUDA/R

HIGHLIGHT COURSES

Probabilistic Modeling and Reasoning

Computational Cognitive Science

Reinforcement Learning

Algorithmic Game Theory

Automatic Medical Record Generation based on Doctor-Patient Dialogue

📅 Mar. 2018 – Aug. 2018   📍 Beijing, China

- Designed the schema of a new medical knowledge base and implemented an information gain algorithm to do diagnosis on it.
- Led the development of a disease tag prediction system based on the utterances of doctor-patient dialog.

Question Answering System for Gaokao History Multiple Choice Questions

📅 Oct. 2015 – Oct. 2017   📍 Beijing, China

- Designed and developed a novel deep neural network model that is combined with IR method, which gained best performance on real Gaokao questions in subject History.
- Implemented various kinds of baseline models including memory networks and dynamic memory networks.
- This work has been published on EACL-2017.

Employing External Rich Knowledge for Machine Comprehension

📅 Oct. 2015 – Feb. 2016   📍 Beijing, China

- Developed a RTE model that is trained on rich external corpus and then be applied to evaluate the confidence of a specific answer candidate in machine comprehension.
- This work has been published on IJCAI-2016.

Research and Analysis of Behavior Modeling in Simulation System

📅 Oct. 2013 – Jun. 2014   📍 Changsha, China

- This is my diploma project, the overall objective is to build a distributed interactive simulation system. I took the responsibility of research and analysis of the behavior modeling.
- Concluded the methods of behavior modeling and abstracted them with first-order sequential logic.
- Built up several behavior models in different scenarios and checked feasibility of these models.

LIFE PHILOSOPHY

"Truth can be known but it may not be the well-known truth."

HOBBIES

Paintball
Archery
Racing Car