바이오 지능 연구실 (Biointelligence Lab)

장병탁 교수: btzhang@bi.snu.ac.kr

허유정 랩장: yjheo@bi.snu.ac.kr

장병탁 교수

Professor. Byoung-Tak Zhang

+82-2-880-1833

btzhang@bi.snu.ac.kr

bi.snu.ac.kr/~btzhang

학력

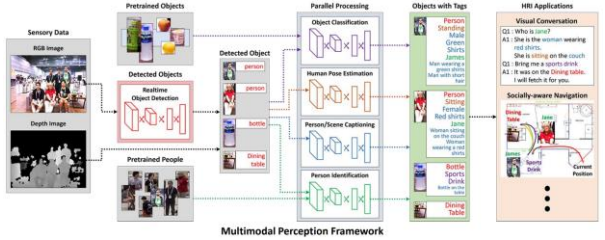
1992 Ph.D. Univ. of Bonn, Germany
1988 M.S. Seoul National University
1986 B.S. Seoul National University

경력

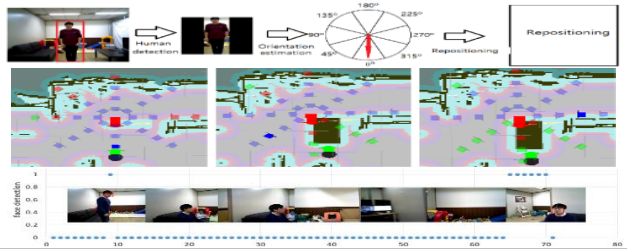
2019.8 – present Director, SNU AI Institute (AIIS)
2017 – present Director, Video Intelligence Center (VIC)
2016 – present Chair Professor in Artificial Intelligence, POSCO
1997 – present Professor, Computer Science and Engineering and Adjunct Professor, Cognitive Science and Brain Science, Seoul National University (SNU)
2013 – 2014 Visiting Professor, Princeton Neuroscience Institute (PNI)
2003 – 2004 Visiting Professor, MIT AI Lab (CSAIL)
1992 – 1995 Research Fellow, German National Research Center for Information Technology (GMD, now Fraunhofer Institutes)

Human Activity Learning by Home Robot

• **Visual Perception for Human-Care Robots**



• **Robust Estimation of Human Orientation**

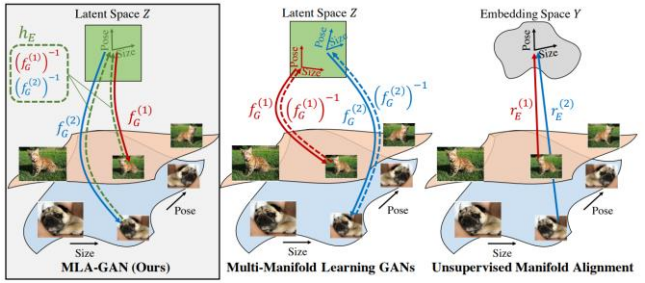


RoboCup@Home Competition

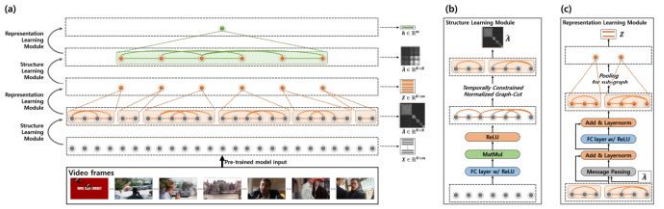
• **Uncovering Everyday Life Activity by Home Robot**

Human-Level Machine Learning

• **Manifold Learning and Alignment with GAN**

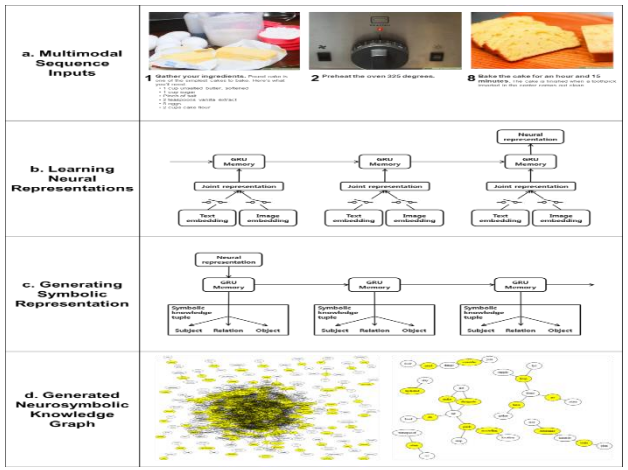


• **Learning Compositional Structure of Sequential Data**



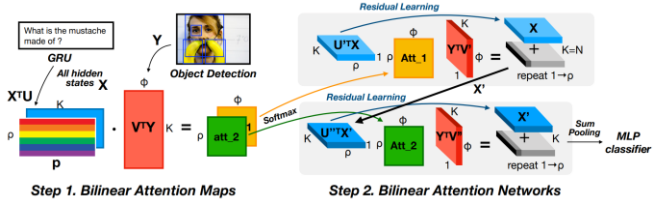
Neurosymbolic Knowledge Construction

• **Construction of symbolic knowledge for multimodal data by learning neural representations**



Multimodal Residual Networks for VQA

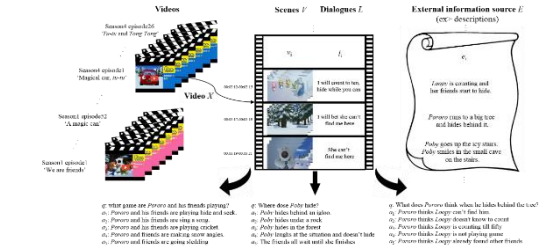
• **Bilinear Attention Networks**



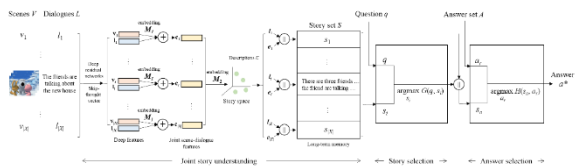
• **Visualization of Attentive Effect**

Video Turing Test using Dual Deep Memories

• **Video QA problem**



• **Deep Embedded Memory Network**



Biointelligence Laboratory https://bi.snu.ac.kr

Our research focuses on "*biointelligence*" i.e. the study of artificial intelligence on the basis of biological and bio-inspired information technologies, and its application to real world problems.

Focused Competitions

- RoboCup@Home Domestic Standard Platform League (2nd Place, 2019)
- Visual Dialog Challenge (3rd Place, 2019)
- GQA Challenge 2019 for Real-World Visual Reasoning (1st Place, 2019)
- Visual Storytelling Challenge (1st Place, 2018)
- Visual Question Answering Challenge (1st place, 2018)
- RoboCup@Home Social Standard Platform League (1st place, 2017)

Ongoing Projects

- **Video Turing Test** (인간 수준의 비디오 이해 지능 및 검증 기술 개발)
- **SW Star Lab** (웨어러블센서기반 실생활 학습 자율지능 인지에이전트SW)
- **BabyMind** (뇌·인지 발달과정의 기초-영아단계 모사형 실세계 상호작용 경험 기반 객체 관련 개념의 기계학습 기술 개발)
- **HandAI** (촉각이 가능한 로봇 손으로 다양한 물체를 다루는 방법과 절차를 학습하는 로봇 손 조작 지능 개발)
- **AFOSR** (Autonomous Learning in Mobile Cognitive Machines)

Recent Publications

- Cut-Based Graph Learning Networks to Discover Compositional Structure of Sequential Video Data, AAAI 2020 Oral
- Dual Attention Networks for Visual Reference Resolution in Visual Dialog, EMNLP 2019
- CoDraw: Collaborative drawing as a testbed for grounded goal-driven communication, ACL 2019
- Perception-Action-Learning System for Mobile Social-Service Robots using Deep Learning, AAAI 2018
- Answerer in Questioner's Mind: Information Theoretic Approach to Goal-Oriented Visual Dialog, NeurIPS 2018 Spotlight
- Bilinear Attention Networks, NeurIPS 2018