

Denamganai Kevin

IGGI Phd Student

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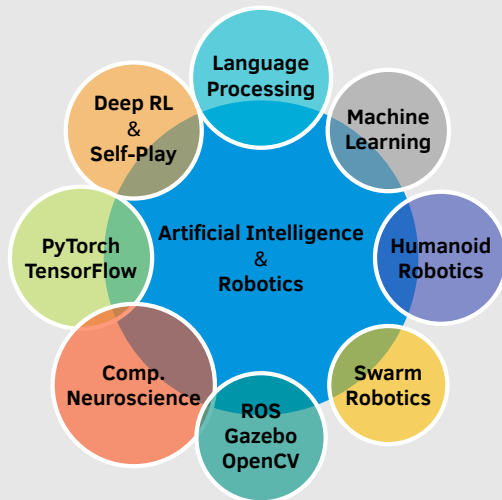
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Near32

Skills

Overview



Programming

C • C++ • Python • \LaTeX

Java • Mathematica

Language

French - Native

English - Bilingual (TOEFL 105)

German - Conversant

Japanese - Conversant

Projects

ReferentialGym - Language Emergence and Grounding in Referential Games.

Regym - A Generalized Self-play Deep Reinforcement Learning framework.

PyTorch_RL - Implementations of Deep Reinforcement Learning algorithms.

RelationalReasoning - Implementations of (Deep) Relational Reasoning algorithms, using PyTorch.

PyTorch_VAE - Replication of many Disentangling β -VAE variants.

GazeboDomainRandom - Domain Randomization tools for object recognition.

HaRo - 3D printable MG995-based Raspberry Pi-powered humanoid robot.

Education

2018 - Present **PhD Student, Intelligent Games and Game Intelligence (IGGI)**
University of York, United Kingdom

2013 - 2017 **Engineer Degree, Computer Science and Systems**

Ecole Nationale Supérieure de l'Electronique et de ses Applications, France

2015 - 2017 **Research MSc., Artificial Intelligence and Robotics**

Université de Cergy-Pontoise, France

2016 - 2017 **MEng., Electrical Engineering and Information Science** (GPA: 3.7/4)

Osaka Prefecture University, Japan

Certifications

2017 **Deep Learning Foundation**

Nanodegree - Udacity

2015 **Autonomous Mobile Robots**

(AMRx) - Edx

2015 **Underactuated Robotics**

(6.832x) - Edx

2014 **Computational Neuroscience**

- Coursera

Research

2018 - Present **IGGI PhD Student**

University of York, United Kingdom

Thesis: Situated Language-based Cooperation between Players and NPCs

- Proposed a **nomenclature for Referential Games**, in its latest resurgence in deep learning, and implemented a PyTorch-based framework designed around it, entitled ReferentialGym.
- Study (artificial) language emergence and grounding in the visual modality via Referential Games variants, and investigate the (emerging) **systematic generalisation abilities** of the neural players.
- Investigate **self-play** language emergence and grounding in visual Referential Games variants for **zero-shot human-computer cooperation**.

2015 - 2017 **Research MSc. Student**

Université de Cergy-Pontoise, France

Thesis: Visual Contexts for a Spatial Recognition System in Wide Environments

2016 - 2017 **MEng. Student**

Osaka Prefecture University, Japan

Thesis: Adaptability Features in a Nonlinear System-based Swarm of Robots

Publications

K.Denamganai and J. Walker, **On (Emergent) Systematic Generalisation and Compositionality in Visual Referential Games with Straight-Through Gumbel-Softmax Estimator**, in *4th NeurIPS Workshop on Emergent Communication*, 2020.

K.Denamganai and J. Walker, **ReferentialGym: A Nomenclature and Framework for Language Emergence & Grounding in (Visual) Referential Games**, in *4th NeurIPS Workshop on Emergent Communication*, 2020.

D. Hernandez, K. Denamganai, Y. Gao, P. York, S. Devlin, S. Samothrakis and J. Walker, **A Generalized Framework for Self-Play Training**, in *Proceedings of the 2019 IEEE Conference on Games (CoG)*, pp. 1-8, 2019.

Experience

2020-Present **Graduate Teaching Assistant**

University of York, Computer Science Dept.

- Mathematical Foundations of Computer Science (COM00013C)
- Computability and Complexity (COM00023I)
- Introduction to Software and Systems Engineering (COM00019I)

2016-Present **Artificial Intelligence & Robotics Freelancer**

Upwork

- On-screen 2D gaze pose tracking system for hand-held devices with **PyTorch**.
- Domain randomization tools for simulation-to-reality transfer of 3D avatar-based tasks using **MakeHuman** and **Blender**.
- Car make and model classification systems using **TensorFlow** in a Semi-supervised GAN framework.
- 3D bot-human interface, using **Blender** and **Panda3D's** Python API.
- Policy Neural Network for a Backgammon AI, using **TensorFlow**.
- Development of algorithms for a Roomba-like robot, using **ROS & Gazebo**.