Denamganaï Kevin

AI and Robotics Engineer

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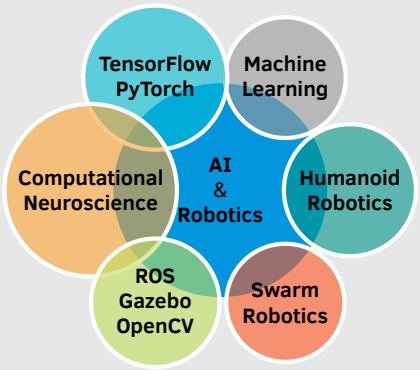
Near32

Skills

Overview



Programming

C • C++ • Python • LaTeX

Java • Mathematica • SQL

Language

French - Native
English - Bilingual (**TOEIC 950**)
German - Conversant
Japanese - Conversant

Projects

PyTorch_RL - implementations of state-of-the-art Deep Reinforcement Learning algorithms using PyTorch.
GazeboRL - Reinforcement Learning framework around ROS & Gazebo.
GazeboDomainRandom - Domain Randomization tools following Tobin et al., for object recognition tasks.
Core - Computer Algebra System in C++.
HaRo - 3D printable MG995-based humanoid robot.
EKF-DATMO - Extended Kalman Filter-based solution to the DATMO problem.
SIMULATOR - Physics-based simulator in C++.

Education

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: 3.75/4)
Osaka Prefecture University, Japan

Certifications

2017 **Deep Learning Foundation Nanodegree** - Udacity

2015 **Underactuated Robotics (6.832x)** - Edx

2015 **Autonomous Mobile Robots (AMRx)** - Edx

2014 **Computational Neuroscience** - Coursera

Research

2015 - 2017 **Research MSc. Candidate** Université de Cergy-Pontoise, France

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

- Review the state-of-the-art of the domain of biologically-inspired robotic vision and focus on a neuronal architecture aiming at solving the online spatial recognition problem.
- Investigate a coarse-to-fine filtering scheme making use of hebbian-weighted adaptation and parallelized visual information pathways integrated in a cognitive map.
- **Tools**: C/C++, WeBots, Linux, Promethe

2016 - 2017 **MEng. Candidate** Osaka Prefecture University, Japan

Thesis: Adaptability Features in a Nonlinear System-based Swarm Robotic Framework

- Propose two obstacle avoidance behaviors designed as nonlinear system-based controllers in order to shore up the bridge between nonlinear systems and swarm robotics, following our laboratory's previous works.
- Investigate the synthesis potential of nonlinear system-based controllers with a deep learning-based controller in a deep reinforcement learning framework.
- **Tools**: C/C++, Python, ROS, Gazebo, TensorFlow, OpenCV

Publications

K. Denamganai, T. Nakamura, N. Hara and K. Konishi, **"Obstacle avoidance control law for two-wheeled mobile robots controlled by oscillators"**, in *Proceedings of the 61st Annual Conference of the Institute of Systems, Control and Information Engineers (ISCIE)*, 221-4, 2017.

K. Denamganai, T. Nakamura, N. Hara and K. Konishi, **"Coupled Kuramoto oscillator-based control laws for both formation and obstacle avoidance control of two-wheeled mobile robots"**, *IEICE Technical Report*, NLP2017-44, pp. 87-91, 2017.

Experience

2016-Present **AI & Robotics Freelancer** Upwork

- On-screen user's gaze location tracker system for hand-held devices.
- 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.