



Advanced Robotics Centre
Faculty of Engineering



Advanced Robotics Centre Seminar*

Supported by **NUS-NVIDIA JOINT LAB**

“Learning how the brain learns” The successor representation in reinforcement learning

Fred Almeida
Chief Architect
Ascent Robotics Inc.

8 October 2018 (Monday), 6.00pm to 7.00pm
NUS Faculty of Engineering
Lecture Theatre 7A (LT7A)
9 Engineering Drive 1
Singapore 117576

Abstract

Artificial intelligence learns as we humans do – by trial and error. Our experiences teach us valuable lessons which can be applied to new situations. Over time the surrounding world starts to make sense to us and we can be entrusted with more demanding tasks like driving a car. For an AI agent, this learning takes place in a simulation but the principles are the same. To build an AI capable of human level performance, Ascent is bringing the most recent research advancements in the field to market. Technologies we work with include deep reinforcement learning, generative models and transfer learning. We are constantly testing new models and applying the best research to create cutting-edge artificial intelligence. Artificial Intelligence algorithms are not developed in the same way as traditional software. AIs are trained in simulations through trial and error. Behaviour that produces better outcomes for the AI agent are reinforced while adverse choices are discouraged. This is called reinforcement learning. This approach allows the AI to work out for itself which behaviours are most useful to master. We control the learning framework of the simulated environment and let the AI agent determine optimal behaviour models on its own.

About the Ascent Robotics, please see: www.ascent.ai

Speaker

Fred Almeida is the founder of Ascent Robotics, developing autonomous robotics in Tokyo. He comes from a background in Philosophy, Mathematics and is attending Harvard Business School. He spends his free time mostly on planes reading papers.

Ascent develops advanced machine learning algorithms inspired by cutting-edge theoretical neuroscience. Working closely with OEM's, Ascent expects the first autonomous vehicles in Japan will be available in the early 2020's. The ramifications of which will change Japan dramatically as we move into the next decade.

There will be time for interaction with the speaker at the end of the seminar. Light refreshment will be served

Registration is complimentary but pre-registration is required

Please register your attendance at the following link by **4 October 2018**:

<https://goo.gl/forms/3HKuCqVC05i3SJro1>

For enquiry, please email: robotics@nus.edu.sg

*ME4245 Robotics Industry Application Lecture