

NAT DILOKTHANAKUL

Flat 2, 2 Nevern Road, London, SW5 9PJ
n.dilokthanakul14@imperial.ac.uk

EDUCATION

Imperial College London, London PhD in Machine Learning and AI Supervised by Prof. Murray Shanahan (Imperial College London, Google DeepMind)	2014 - Present
University College London, London MSci in Physics (1 st class Hons)	2010 - 2014
Rochester Independent College, Kent A-levels	2009 - 2010
Mahidol Wittayanusorn School, Nakhon Pathom Mathayom levels	2006 - 2009

PROFESSIONAL EXPERIENCES

IJCAI Workshop Oral presentation, New York City · Presenting paper “Classifying Options for Deep Reinforcement Learning”.	July 2016
Thomas Young Centre, London <i>Research Intern</i> · Supervised by Dr. Peter Sushko. · Developed a program that calculates electrostatic embedding potentials in lattice structures.	Spring 2013
Advance Dental Technology Center, Bangkok <i>Research Intern/Software Engineer</i> · Supervised by Dr. Chanjira Sinthanayothin. · Worked on image pre-processing and 3D image registration functions as part of the CephSmile project.	Summer 2008

AWARDS AND COMPETITIONS

Winner of JISC Summer of Student Innovation Award · Developed a web-application that promotes engagement between students and their lectures. · Technologies used: Javascript, HTML/CSS, Node.js, PostgreSQL · Learned about startup-management and marketing strategies through series of JISC seminar events.	Summer 2013
The Royal Thai Government Scholarship · Covers undergraduate and post-graduate tuition fees and living expenses.	2009 - Present
Thailand Physics Olympiad · Shortlisted as one of the 16 finalists. The competition involved months of intensive physics lectures and experiments.	2009

TEACHING EXPERIENCES

Master project supervisions

2018

Co-supervisor

- Supervised an MSc individual project titled: Directed exploration in Deep Reinforcement Learning.
- Supervised an MSc individual project titled: Evolving system of Reinforcement-Learning-agents with genetic algorithms.

Teaching Assistant

2016 - 2017

- Computational Neurodynamics (MSc)
- Database 1 (BSc)
- Introduction to Java (MSc conversion)

‘Tor-Sang’ Volunteering Camp, Kanchanaburi

Summer 2011

Organiser/Activity team leader

- Tor-Sang is an educational camp that aims to inspire underprivileged children in rural parts of Thailand.
- Responsible for designing and organising most of the activities.
- Organised a football match to raise money for the camp.

‘Tor-Sang’ Volunteering Camp, Lampang

Summer 2010

Team member

- Responsible for supervising and taking care of children

RESEARCH INTEREST

Deep Reinforcement Learning

- Problem of sparse and delayed reward.
- Problem of stability in representation learning.
- Problem of life-long learning/ transfer learning and catastrophic forgetting.

Deep Generative Model, Approximate Inference and Bayesian Deep Learning

- Problem of how to scale up Bayesian inference mechanisms with Neural Network.
- Problem of disentangling factors of variation in data.

PUBLICATIONS

N. Dilokthanakul, M. Shanahan, **Risk-seeking Behaviour and Exploration in Deep Q-Learning**, In preparation (2018)

N. Dilokthanakul, C. Kaplanis, N. Pawlowski and M. Shanahan, **Feature Control as Intrinsic Motivation for Hierarchical Reinforcement Learning**, In arXiv preprint, arXiv:1705.06769. (2017)

N. Dilokthanakul, P. A. M. Mediano, M. Garnelo, M. C. H. Lee, H. Salimbeni, K. Arulkumaran, and M. Shanahan, **Deep Unsupervised Clustering with Gaussian Mixture Variational Autoencoders**, In arXiv preprint, arXiv:1611.02648. (2016)

K. Arulkumaran, N. Dilokthanakul, M. Shanahan and A. Bharath, **Classifying Options for Deep Reinforcement Learning**, In proceedings IJCAI 2016 Workshop on Deep Reinforcement Learning. (2016)