Tuyen P. Le | Resume

Room 350, College of Electronics and Information, Kyung Hee University
1 Seocheon-dong, Giheung-gu, Yongin-si, 449-701, South Korea

+82 (10) 2753 9011 • tuyenple@khu.ac.kr • tuyenple.com
lephamtuyen • lephamtuyen

"In the End, we will remember not the words of our enemies, but the silence of our friends." ***Martin Luther King, Jr.***

Education

Kyung Hee University — **South Korea**
Master and PhD, 4.14/5.0 — *2014–2019*
Research Topics: Deep Reinforcement Learning, Machine Learning, Robotics

Bach Khoa University — **Ho Chi Minh City**
Bachelor, 8.46/10.0 — *2008–2013*
Honor program

Luong Van Chanh Gifted High School — **Phu Yen province**
Diploma, 9+/10 — *2005–2008*
Subjects taken: Mathematics, Physics, Chemistry, English ...

PhD dissertation

Title: *Deep Hierarchical Reinforcement Learning Algorithm in Partially Observable Markov Decision Processes*

Supervisors: TaeChoong Chung

Abstract: In recent years, reinforcement learning has achieved many remarkable successes due to the growing adoption of deep learning techniques and the rapid growth in computing power. Nevertheless, it is well-known that flat reinforcement learning algorithms are often not able to learn well and data-efficient in tasks having hierarchical structures, e.g. consisting of multiple subtasks. Hierarchical reinforcement learning is a principled approach that is able to tackle these challenging tasks. On the other hand, many real-world tasks usually have only partial observability in which state measurements are often imperfect and partially observable. The problems of RL in such settings can be formulated as a partially observable Markov decision process (POMDP). In this paper, we study hierarchical RL in POMDP in which the tasks have only partial observability and possess hierarchical properties. We propose a hierarchical deep reinforcement learning approach for learning in hierarchical POMDP. The deep hierarchical RL algorithm is proposed to apply to both MDP and POMDP learning. We evaluate the proposed algorithm on various challenging hierarchical POMDP.

Key words: Hierarchical Deep Reinforcement Learning, Partially Observable MDP (POMDP), Semi-MDP, Partially Observable Semi-MDP (POSMDP)

Experience

Professional

Software Engineer at KMS Technology Vietnam — **Ho Chi Minh City**, *2013–2014*

Ranked: Top 26 best work places in Vietnam
Website: https://www.kms-technology.com/
Description: Develop some mobile applications (iOS and Android).

Miscellaneous

Internship at Recobell — **Seoul City**, *2015–2016*

Website: http://www.recobell.com/rb/
Description: Develop mobile applications (iOS and Android).

Internship at polliwog Corp. — **Seongnam City**, *2014–2015*

Website: http://www.polliwogeda.com/xe_new/
Description: Develop algorithm (C++) to find a shortest path in a Printed Circuit Board (PCB).

Internship at VNG Corp. — **Ho Chi Minh City**, *2012–2013*

Website: https://vng.com.vn/
Description: Work in a group to develop a website using state-of-the-art technologies.

Languages

Korean: Intermediate level — *Read, Write, Speak (simple form)*
English: Influence — *Second language*
Vietnamese: Influence — *Mother language*

Computer skills

Programming Languages: C++, Java, Python, Objective-C, Swift, Matlab, Latex
Libraries: Cocoa, OpenCV, Tensorflow, Matplotlib, ROS, Gym AI
Tools: Visual Studio, Matlab, Pycharm, Eclipse, XCode, Texmaker
Miscellaneous: Adobe Photoshop, Adobe Lightroom. . . .

References

Dr. TaeChoong Chung
Professor
Office: Room 305, College of Electronics and Information, Kyung Hee University.
Address: 1 Seocheon-dong, Giheung-gu, Yongin-si, 449-701, South Korea.
Phone: Tel: +82 31 201-2569, Mobile : +82 10 9129-2569.
Email: tcchung@khu.ac.kr

Dr. Ngo Anh Vien
Assistant Professor
Office: 03-032 (CSB Building) or 03-026 (ECIT).
Address: Room 03-032, CSB Building, Queen's University Belfast, 18 Malone Rd, Belfast BT9 6RT, UK.
Phone: 44 (0)28 9097 1824 or 44 (0)28 9097 4637
Email: v.ngo@qub.ac.uk

Publications

[1] JinSeok Kim Md. Abu Layek Tuyen P. Le Marlith Jaramillo TaeChoong Chung CholJin Jong, Seung-yoon Choi. Study of Sound Location Tracking Mobile Robot Using Lego Mindstorms. volume , pages 1028–1029. KOREA INFORMATION SCIENCE SOCIETY, 2016.

[2] Viet-Hung Dang, Ngo Anh Vien, Tuyen P. Le, and Taechoong Chung. A functional optimization method for continuous domains. In Yuanfang Chen and Trung Q. Duong, editors, *Industrial Networks and Intelligent Systems*, pages 254–265, Cham, 2018. Springer International Publishing.

[3] CholJin Jong Md. Abu Layek Tuyen P. Le Marlith Jaramillo TaeChoong Chung JinSeok Kim, Seung-yoon Choi. Selected wireless mesh network model and architecture for a communication interruption in the fixed wireless environment. volume , pages 1265–1267. KOREA INFORMATION SCIENCE SOCIETY, 2016.

[4] M. A. Layek, N. Q. Thai, M. A. Hossain, N. T. Thu, Tuyen P. Le, A. Talukder, T. Chung, and E. N. Huh. Performance analysis of h.264, h.265, vp9 and av1 video encoders. In *2017 19th Asia-Pacific Network Operations and Management Symposium (APNOMS)*, pages 322–325, Sept 2017.

[5] Tuyen P. Le and T. Chung. Controlling bicycle using deep deterministic policy gradient algorithm. In *2017 14th International Conference on Ubiquitous Robots and Ambient Intelligence (URAI)*, pages 413–417, June 2017.

[6] Tuyen P. Le, A. Layek, N. A. Vien, and T. Chung. Deep reinforcement learning algorithms for steering an underactuated ship. In *2017 IEEE International Conference on Multisensor Fusion and Integration for Intelligent Systems (MFI)*, pages 602–607, Nov 2017.

[7] Tuyen P. Le, Md Abu Layek Ngo, Vien Anh, and TaeChoong Chung. Deep hierarchical reinforcement learning algorithm in partially observable markov decision processes. *IEEE Access*.

[8] Tuyen P. Le, Vien Anh Ngo, P Marlith Jaramillo, and TaeChoong Chung. Importance sampling policy gradient algorithms in reproducing kernel hilbert space. *Artificial Intelligence Review*, pages 1–21.

[9] Tuyen P. Le, Hoang Huu Viet, Sang Hyeok An, Seung Gwan Lee, Dong-Han Kim, and Tae Choong Chung. Univector field method-based multi-agent navigation for pursuit problem in obstacle environments. *Journal of Central South University*, 24(4):1002–1012, Apr 2017.

[10] Md Alamgir Hossain Ngo Thien Thu Tuyen P. Le Ashis Talukder-TaeChoong Chung Eui-Nam Huh Md Abu Layek, Ngo Quang Thai. Analysis of the Effects of Timing Presets on the Performance of H.264/AVC and H.265/HEVC Video Encoders. volume , pages 442–443. Korea Institute Of Communication Sciences, 2017.

[11] Md Alamgir Hossain Ngo Thien Thu Tuyen P. Le Ashis Talukder-TaeChoong Chung Eui-Nam Huh Md Abu Layek, Ngo Quang Thai. Performance Analysis of AV1 for Video Coding in Very Low Bit Rates. volume , pages 118–120. KOREA INFORMATION SCIENCE SOCIETY, 2017.

[12] Tuyen P. Le Marlith Jaramillo JinSeok Kim Jeong cheol jin Eui-Nam Huh TaeChoong Chung Md. Abu Layek, Seung-yoon Choi. Compression Efficiency Of Text Images In Hangul And Other Languages. volume , pages 777–779. KOREA INFORMATION SCIENCE SOCIETY, 2016.

[13] Nguyen H. Tran Choong Seon Hong Minh N. H. Nguyen, Tuyen P. Le. Deep Reinforcement Learning based Smart Building Energy Management. volume , pages 871–873. KOREA INFORMATION SCIENCE SOCIETY, 2017.

[14] Tuyen P. Le Cheoljin Jeong Jinseok Kim Marlith Jaramillo TaeChoong Chung Seung-yoon Choi, Md. Abu Layek. A Study of Sequential Workspace Management Approach for Autonomous Mobile Robot in Path Planning Problem. volume , pages 1036–1038. KOREA INFORMATION SCIENCE SOCIETY, 2016.

[15] Marlith Jaramillo CholJin Jong Seung-yoon Choi JinSeok Kim TaeChoong Chung Tuyen P. Le, Md. Abu Layek. A Non-parametric policy based Algorithm in Reproducing Kernel Hilbert Space. volume , pages 892–893. KOREA INFORMATION SCIENCE SOCIETY, 2016.

[16] Seung-yoon Choi JinSeok Kim TaeChoong Chung Md. Abu Layek Tuyen P. Le, CholJin Jong. Reinforcement Learning of Vehicle Agent and Art work Trial using the Learning Trajectories. volume , pages 719–721. KOREA INFORMATION SCIENCE SOCIETY, 2017.

[17] Seung-yoon Choi TaeChoong Chung Tuyen P. Le, Abu Layek. Gathering Objects in Four-rooms Domain under Partially Observability. volume , pages 865–867. KOREA INFORMATION SCIENCE SOCIETY, 2017.