Tuyen P. Le | Resume

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"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 Ph.D., 4.14/4.3 — *2014/03–2019/02*
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 ...

Ph.D. dissertation

Title: *Deep Hierarchical Reinforcement Learning Algorithms 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 workplaces in Vietnam

Website: https://www.kms-technology.com/

Description: Develop some mobile applications (iOS and Android): Football statware, Basketball Statware, pixNotes (a tool for internal use).

Miscellaneous

Internship at Recobell (Yello Mobile) — **Seoul City**, *2015–2016*

Website: http://www.recobell.com

Description: Develop mobile applications (iOS and Android). Sometimes, I did the jobs related to web applications on AWS

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 (TOPIK I level 2) — *Read, Write, Speak (simple form)*

English: Influence — *Second language*

Vietnamese: Influence — *Mother language*

Computer skills

Programming Languages: Python, Java, C++, Objective-C, Swift, Matlab, RDF, HTML, XML, CSS, Javascript.

Libraries: Cocoa, OpenCV, Tensorflow, Matplotlib, ROS, Gym AI

Tools: Pycharm, Visual Studio, Matlab, Eclipse, XCode, Inkscape, Photoshop, Lightroom, Premiere, Draw.io.

Platforms: Window, Ubuntu, AWS, Firebase

Courses I did

Machine Learning and Robotics: Big Data Analysis, Mobile Robotics, Data Mining, Semantic Web, Machine Learning, Artificial Intelligence

Mathematics: Graph Theory, Queuing Theory, Advanced Probability and Statistics, Engineering Optimization, Discrete Mathematics

Related CS: Query Processing, Information Visualization, Advanced Computer Graphics, Future Internet, Computer Vision, Real-time Systems, Advanced Topic in Information Security, Technical Writing

Undergraduate: Computer Architecture, OOP, Data Structure and Algorithms, Database Systems, Operating Systems, Computer Networks, Computer Graphics, Algorithmic Analysis, Distributed Systems, Cryptography

References

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Publications

Journals

[1]T. P. Le, N. A. Vien, and T. Chung. A deep hierarchical reinforcement learning algorithm in partially observable markov decision processes. *IEEE Access*, 6:49089–49102, 7 2018.

[2]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.

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[4]Hoang Huu Viet, Le Hong Trang, SeungGwan Lee, Le Pham Tuyen, and TaeChoong Chung. A shortlist-based bidirectional local search for the stable marriage problem. *Applied Intelligence*, 2018 (Major Revision).

International Conferences

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[6]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.

[7]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.

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Domestic Conferences

[10]Tae Choong Chung and Le Pham Tuyen. Pleasure of Learning. *ICCC International Digital Design Invitation Exhibition*, :131–131, 2017.

[11]TaeChoong Chung and Le Pham Tuyen. RLVisualizer: An application for Visualizing Trajectories of Reinforcement Learning Problem. volume , pages 13–14. The Korea Contents Society, 2017.

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

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