PONGSAKORN U-CHUPALA, Ph.D.

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EDUCATION

Nara Institute of Science and Technology, *Nara, Japan (2013-2018)*

- Doctor of Engineering, Computer Science, Graduate School of Information Science (GPA: 4.00)
- Master of Engineering, Computer Science, Graduate School of Information Science (GPA: 4.00)

Kasetsart University, *Bangkok, Thailand (2008-2013)*

- Bachelor of Engineering, Computer Engineering, *Cum Laude* (GPA: 3.54)

LANGUAGE QUALIFICATIONS

- 990 Points, TOEIC IP, June 2015
- 101 Points, TOEFL iBT, October 2012
- Level N2, Japanese Language Proficiency Test, December 2021

SCHOLARSHIPS

- MEXT Scholarship *(2015-2018)*
- JASSO Scholarship *(2011-2012)*

AFFILIATIONS

- PRAGMA Student Steering Committee *(2015-2018)*
- Google Developer Group Thailand *(2012-2018)*
- Google Student Ambassador SEA, Google Inc. (2012)

LINKS

- Personal Github: https://github.com/puchupala
- Work Github: https://github.com/te-pongsakornuchupala
- LinkedIn: https://www.linkedin.com/in/puchupala/

SKILLS

- Distributed Machine Learning (PyTorch, TensorFlow, NNabla)
- GPGPU Application Optimization (CUDA, ROCm)
- Distributed Communication Algorithm
- High-Performance Computing for Machine Learning Workload
- Cloud Computing, Virtualization, and Linux Containers
- Web Technology and Web Development
- Software-Defined Networking and OpenFlow
- Linux Administration
- Programming Languages (ordered by proficiency): Python, C++, JavaScript
- Languages: Thai (Native), English (Business Proficiency), Japanese (Limited Proficiency)

EXPERIENCES

2018-present Research Engineer (Distributed Deep Learning), R&D Center, Sony Group Corporation, Japan	• I help develop resource-efficient distributed deep learning method for massive neural network model • I help design AI/ML compute cluster using non-standard hardware and accelerator • I develop distributed deep learning throughput estimator to help with hyper-parameter tuning • **NNabla** Sony's MPI-based high-performance deep learning framework. I am responsible for distributed learning performance optimization.
2013-2018 PHD Student, Software Design and Analysis Laboratory, Nara Institute of Science and Technology, Japan	• *Doctoral Dissertation* **Increasing Data Center Efficiency with Improved Task Scheduling and Communication** I propose several optimizations for cloud infrastructure • *Master's Thesis* **Overseer: Application-Aware Routing** OpenFlow controller for bandwidth and latency aware routing implemented with POX. • **PRAGMA-ENT** Breakable international SDN testbed for PRAGMA community. Shared administration responsibility over multiple sites including NAIST, Osaka University, University of California San Diego, and University of Florida. • **Applying Deep Learning to Network Traffic Identification and Categorization** The CAIDA Internet traffic dataset is analyzed with stacked denoising autoencoder implemented with TensorFlow. • **Container Rebalancing** A novel scheduling mechanism with a rebalancing processing working alongside a scheduling process. A Hadoop/Hive-powered data processing technique and a Python-based simulation using Google's cluster data is performed to validate this method.
2017 Internship at ITRI, AIST, Japan	• I benchmarked GPFS file system
2014 Visiting Scholar at CallT2, University of California San Diego, United States	• **PRAGMA Boot** A program to instantiate VM in PRAGMA's cloud. Responsible for OpenNebula plugin written in Ruby.
2013 Part-Time Developer, Innovative Extremist Co., Ltd.	• **ByteArk** S3-compatible SEA-based CDN. I was a part of the team responsible for the internal API. • **Nyanlive** A complete solution for creating and maintaining video streaming platform. I was responsible for streaming authentication/authorization system and the internal API implemented with Django. • **Knowbita** Online lecture archive of dept. of computer eng., Kasetsart University. I was responsible for the internal API implemented with Django.
2008-2013 Student, High Performance Computing and Networking Center, Kasetsart University	• *Thesis* **An implementation of a multi-site virtual cluster cloud** Virtual cluster over multiple OpenNebula sites
2012 Part-Time Developer, Onebit Matter Co., Ltd. (now Wisesight Co., Ltd.)	• **OBVOC** Social media monitoring platform. I was responsible for social media data collection using Python.
2012 Part-Time Developer, Diversition Co., Ltd.	• I designed normalized database semantic for an online shop
2011 Exchange Student, Cybermedia Center, Osaka University, Japan	• **A Virtual Cluster Manager using a Hierarchical Management Model for Cloud Infrastructure** I developed virtual cluster management tool for OpenNebula written in Ruby
2009-2010 Part-Time Developer, Thoth Media Co., Ltd. (now Wisesight Co., Ltd.)	• **Kpiology** Social media analytics platform. I was responsible for the early version of Twitter™ data collection and analytics using Python.

SIDE PROJECTS

- **Homebridge Nature Remo Multi Toggle Light** *(2021)*: Homebridge plugin for controlling toggle light through Nature Remo device.
- **GaineViz** *(2017)*: Web-based visualization tool for Gainesville city's open-data. Best hack award, CENTRA2 Student Hackathon.
- **eCOStamp** *(2013-2014)*, Electronics collectible stamp platform combining web service, smartphone application and 3D-printed Arduino-based hardware. Part of Creative and International Competitiveness Project (CICP2013) supported by NAIST.

NOTABLE PUBLICATIONS

- H. Mikami, H. Suganuma, P. U-chupala, Y. Tanaka, and Y. Kageyama, *"ImageNet/ResNet-50 Training in 224 Seconds"*, arXiv:1811.05233 [cs.LG], 2018.
- P. U-chupala, Y. Watashiba, K. Ichikawa, S. Date, and H. Iida, *"Application-aware network: network route management using SDN based on application characteristics,"* CSI Transactions on ICT, pp. 1–11, 2017.
- P. U-chupala, Y. Watashiba, K. Ichikawa, S. Date, and H. Iida, *"Container Rebalancing: Towards Proactive Linux Containers Placement Optimization in a Data Center,"* in The 41th IEEE Computer Society International Conference on Computers, Software & Applications (COMPSAC), 2017.
- P. U-chupala, K. Ichikawa, H. Iida, N. Kessaraphong, P. Uthayopas, S. Date, H. Abe, H. Yamanaka, and E. Kawai, *"Application-Oriented Bandwidth and Latency Aware Routing with OpenFlow Network,"* in The 6th IEEE International Conference on Cloud Computing Technology and Science (CloudCom), 2014.
- P. U-chupala, P. Uthayopas, K. Ichikawa, S. Date, and H. Abe, *"An implementation of a multi-site virtual cluster cloud,"* in The 2013 10th International Joint Conference on Computer Science and Software Engineering (JCSSE), 2013, pp. 155–159
- P. U-chupala, K. Ichikawa, H. Abe, S. Date, and S. Shimojo, *"A Virtual Cluster Manager using a Hierarchical Management Model for Cloud Infrastructure,"* in The 6th International Conference on Ubiquitous Information Technologies and Applications (CUTE), 2011.