

Jungtaek Kim

Personal Information

Nationality: Republic of Korea
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Work Experience

Jan 02, 2018 - Apr 27, 2018	Research Engineering Intern at SigOpt Inc. San Francisco, California, United States of America Implementing Bayesian optimization method for transferring prior trials via multi-task Gaussian process regression.
Oct 30, 2017 - Dec 29, 2017	Research Intern at AITRICS Seoul, Republic of Korea Implementing an attention model for electronic health records dataset and validating Bayesian optimization-based model tuning for clinical dataset.
Jul 25, 2017 - Oct 20, 2017	Research Intern at Samsung Electronics Hwaseong, Republic of Korea Studying, designing and developing an entire anomaly detection system for hundreds million sensors of semiconductor manufacturing system using convolutional recurrent neural networks and generative adversarial networks.
Jan 01, 2016 - Jul 31, 2017	Advisor at XBrain Pohang, Republic of Korea Proposing and advising the method to develop AutoML framework, named as <i>Alice</i> . Participating together in AutoML Challenge.
Jan 02, 2017 - Jan 26, 2017	Research Intern at Samsung Electronics Hwaseong, Republic of Korea Developing a density estimator for defects on semiconductor.
Aug 01, 2016 - Aug 26, 2016	Research Intern at Samsung Electronics Hwaseong, Republic of Korea Studying and developing a trend classification framework for hundreds million sensors of semiconductor manufacturing system using convolutional neural networks.

Education

Mar 01, 2015 - Present	Ph.D. Course in Computer Science and Engineering at Pohang University of Science and Technology (POSTECH) , Pohang, Republic of Korea Machine Learning Group — Supervisor: Prof. Seungjin Choi and Prof. Minsu Cho
Mar 01, 2010 - Feb 13, 2015	B.S. in Mechanical Engineering & Computer Science and Engineering at Pohang University of Science and Technology (POSTECH) , Pohang, Republic of Korea
Jul 07, 2014 - Aug 15, 2014	Summer Session at University of California, Berkeley , Berkeley, California, United States of America
Mar 01, 2007 - Feb 28, 2010	High School Graduate at Hansung Science High School , Seoul, Republic of Korea

Research Interests

- Automation of machine learning
- Hyperparameter optimization
- Bayesian optimization

Publications

(* indicates equal contribution.)

E-prints

1. **Jungtaek Kim**, Michael McCourt, Tackgeun You, Saehoon Kim, and Seungjin Choi. Practical Bayesian optimization over sets. *arXiv e-prints*, arXiv:1905.09780, 2019.
2. **Jungtaek Kim** and Seungjin Choi. Practical Bayesian optimization with threshold-guided marginal likelihood maximization. *arXiv e-prints*, arXiv:1905.07540, 2019.
3. Minseop Park, **Jungtaek Kim**, Saehoon Kim, Yanbin Liu, and Seungjin Choi. MxML: Mixture of meta-learners for few-shot classification. *arXiv e-prints*, arXiv:1904.05658, 2019.
4. **Jungtaek Kim**, Saehoon Kim, and Seungjin Choi. Learning to warm-start Bayesian hyperparameter optimization. *arXiv e-prints*, arXiv:1710.06219, 2017.

Conference

1. Juho Lee*, Yoonho Lee*, **Jungtaek Kim**, Eunho Yang, Sung Ju Hwang, and Yee Whye Teh. Bootstrapping neural processes. In *Advances in Neural Information Processing Systems 33 (NeurIPS-2020)*, Virtual-only conference, December 6-12, 2020.
2. **Jungtaek Kim** and Seungjin Choi. On local optimizers of acquisition functions in Bayesian optimization. In *Proceedings of the European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD-2020)*, Ghent, Belgium, September 14-18, 2020.

3. Juho Lee, Yoonho Lee, **Jungtaek Kim**, Adam R. Kosiorek, Seungjin Choi, and Yee Whye Teh. Set Transformer: A framework for attention-based permutation-invariant neural networks. In *Proceedings of the Thirty-Sixth International Conference on Machine Learning (ICML-2019)*, Long Beach, California, USA, June 9-15, 2019.
4. Inhyuk Jo, **Jungtaek Kim**, Hyohyeong Kang, Yong-Deok Kim, and Seungjin Choi. Open set recognition by regularizing classifier with fake data generated by generative adversarial networks. In *Proceedings of the Forty-Third IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP-2018)*, Calgary, Alberta, Canada, April 15-20, 2018.
5. **Jungtaek Kim** and Seungjin Choi. Clustering-guided GP-UCB for Bayesian optimization. In *Proceedings of the Forty-Third IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP-2018)*, Calgary, Alberta, Canada, April 15-20, 2018.
6. Saehoon Kim, **Jungtaek Kim**, and Seungjin Choi. On the optimal bit complexity of circulant binary embedding. In *Proceedings of the Thirty-Second AAAI Conference on Artificial Intelligence (AAAI-2018)*, New Orleans, Louisiana, USA, February 2-7, 2018.

Workshop

1. **Jungtaek Kim**, Michael McCourt, Tackgeun You, Saehoon Kim, and Seungjin Choi. Bayesian optimization over sets. *International Conference on Machine Learning (ICML) Workshop on Automated Machine Learning (AutoML-2019)*, Long Beach, California, USA, June 14, 2019.
2. Minseop Park, Saehoon Kim, **Jungtaek Kim**, Yanbin Liu, and Seungjin Choi. TAEML: Task-adaptive ensemble of meta-learners. *Neural Information Processing Systems (NeurIPS) Workshop on Meta-Learning (MetaLearn-2018)*, Montreal, Quebec, Canada, December 8, 2018.
3. **Jungtaek Kim** and Seungjin Choi. Automated machine learning for soft voting in an ensemble of tree-based classifiers. *International Workshop on Automatic Machine Learning at International Conference on Machine Learning (ICML) / International Joint Conference on Artificial Intelligence and European Conference on Artificial Intelligence (IJCAI-ECAI) (AutoML-2018)*, Stockholm, Sweden, July 14, 2018.
4. **Jungtaek Kim**, Saehoon Kim, and Seungjin Choi. Learning to transfer initializations for Bayesian hyperparameter optimization. *Neural Information Processing Systems (NeurIPS) Workshop on Bayesian Optimization (BayesOpt-2017)*, Long Beach, California, USA, December 9, 2017.
5. **Jungtaek Kim**, Jongheon Jeong, and Seungjin Choi. AutoML Challenge: AutoML framework using random space partitioning optimizer. *International Conference on Machine Learning (ICML) Workshop on Automatic Machine Learning (AutoML-2016)*, New York, New York, USA, June 24, 2016.

Honor and Awards

Jun 09, 2019	ICML Travel Award for ICML-2019
Jun 06, 2018	2nd place in AutoML Challenge 2018 (PAKDD-2018 Data Competition)
Apr 15, 2018	IEEE Signal Processing Society Travel Grant for ICASSP-2018
Nov 18, 2016	Best paper runner-up award for LG U+ in 2016 Fall Conference of Korea Business Intelligence Data Mining Society
Jun 24, 2016	3rd place in AutoML5 Phase of AutoML Challenge
Jul 03, 2014	Software Maestro (organized by Korean government (Ministry of Science, ICT and Future Planning & National IT Promotion Agency))
Mar 02, 2010	Presidential Science Scholarship

Professional Service

Program Committee & Reviewer

- IJCAI-2021, AAAI-2021, AutoML-2020, NeurIPS-2020, ACML-2020, ECML-PKDD-2020, NAS-2020, UAI-2020, ICML-2020, AAAI-2020, NeurIPS-2019, AutoML-2019, ACML-2019, UAI-2019, ICML-2019, IJCNN-2019, AutoML-2018, ACML-2018, IJCNN-2018, IJCNN-2017

Talk

- COSEAL-2019 (August 26, 2019), AI Korea 2019 (July 26, 2019), Semiconductor Research Center, Samsung Electronics (June 28, 2019), Samsung Advanced Institute of Technology, Samsung Electronics (December 13, 2018), Naver Corporation (June 12, 2018), SigOpt Inc. (January 04, 2018), Yonsei University Health System (December 15, 2017), Software R&D Center, Samsung Electronics (October 11, 2017), Manufacturing Technology Center, Samsung Electronics (April 14, 2017), Chemical Engineering Department, Yeungnam University (October 05, 2016), The Fifteenth KYUTECH-POSTECH Joint Workshop on Neuroinformatics (August 23, 2016), XBrain Inc. (January 03, 2016)

Teaching

Teaching Assistant

- Artificial Intelligence (Spring 2019), Probabilistic Graphical Models (Fall 2018), Automata & Formal Languages (Fall 2016), Machine Learning (Spring 2016)
- SK Hynix ML Course (Summer 2020, Spring 2019, Fall 2018), Samsung Electronics Device Solutions Business ML Course (Fall 2017, Summer 2017), POSCO Group AI Course (Summer 2019, Summer 2017, Spring 2017)

Languages

Korean: Native

English: Full professional proficiency

Technical Skills

Intermediate: HTML, CSS, Javascript, Django

Advanced: Python, Matlab, TensorFlow, scikit-learn, Most of scientific packages in Python, L^AT_EX