

Heungsub Lee

Contact

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Web Sites

subl.lee, github.com/sublee, linkedin.com/in/sublee

Interests

- Back-end engineering for ML projects
- Developing and documenting API for engineers or researchers
- Free and open-source software

Skills

Programming Languages

Python (expert), Go, Bash, C#, JavaScript

AI Research

PyTorch, data or pipeline parallelism, Triton Inference Server, NVIDIA Nsight Systems

Back-end Development

Linux, Docker, Kubernetes, AWS, Terraform, ZeroMQ, Redis, Couchbase, MySQL, etcd

Work Experience

Software Engineer

[Naver](#), 2020–

A technology company.

Redesign the research platform to boost productivity in [Clova](#).

Software Engineer

[Kakao Brain](#), 2018–2020

The AI research lab in Kakao.

Focused on parallel training of convolutional neural networks, including large-scale data parallelism and pipeline parallelism. Developed and published a pipeline parallelism library in PyTorch named [torchgpipe](#).

Developed a serverless training framework and a distributed hyperparameter search platform for an AutoML service.

Game Server Engineer & Architect

[Nexon](#), 2011–2018

Developed and launched Durango, KartRider Dash & Coin Rush.

Designed and developed cloud-based distributed game servers for Durango (MMORPG) and [KartRider Dash & Coin Rush](#) (online racing games) respectively. Durango achieved up to 70k concurrent users per game world.

Developed an internationalization and localization system focused on linguistic features of Korean and Indo-European languages.

Researched rating systems such as Elo, Glicko, and [TrueSkill](#) to develop a matchmaker.

Led a server engineering team including 15 engineers.

Web Developer

[Npine](#), 2008–2011

Supplies stock images for business on [Iclickart](#).

Developed web services from scratch. Maintained on-premise Linux servers.

Front-end Web Developer

[Lunant](#), 2008–2011

Served social media named VLAHH.

Designed and implemented the UI/UX for social media.

Open Source Experience

[torchgpipe](#), 2019–2020

A GPipe implementation in PyTorch.

Implemented [GPipe](#) in PyTorch with optimization for CUDA, PyTorch's autograd engine, and long skip connections. GPipe is a scalable pipeline parallelism library for the training of a giant model.

This project has become [a part of PyTorch](#). The story behind it can be found on [Kakao Brain Blog](#)^{ko} and [the technical report](#).

[Hangulize](#), 2010–

Automatically transcribes a non-Korean word into Hangul.

Implemented an automatic Hangul transcription algorithm to realize [Brian Jongseong Park's idea](#). Designed and implemented the web service and RESTful API.

Many professional Korean translators habitually use this tool to translate undocumented proper nouns. Netflix refers to this tool in [the Korean timed text style guide](#).

[TrueSkill](#), 2012–

A TrueSkill™ implementation in Python.

Implemented [TrueSkill™](#), which is a rating algorithm for Xbox Live, in Python with a handy interface. This project was introduced in [PyData Berlin 2019](#).

[Profiling](#), 2014–2018

An interactive profiler for Python inspired by the Unity3D profiler.

Developed a Python profiler with an interactive TUI inspired by [the Unity profiler](#). On GitHub, this project has been starred by 3k people. Also, it was the 3rd daily trending repository on Sep 22, 2014.

Others

- [Tossi](#) – A utility for Korean allomorphic particles.
- [Flask-AutoIndex](#) – `mod_autoindex` for [Flask](#).
- [SUBLEERUNKER](#) – A simple parody game of SUBERUNKER.
- [Me2virus](#) – An XSS attack on social media named [Me2day](#). When a user looks at an infected post, a new infected post was written on the user's wall.

Contributions

- For [PyTorch](#), fixed potential GPU memory violation ([#27371](#)); deprecated inconsistent API ([#21006](#), [#25985](#)); discussed a counterintuitive behavior of the autograd engine ([#18568](#)).
- For [ZeroMQ](#), discussed a PUB socket crash ([#2942](#)).
- For [Flask](#), fixed a bug to generate URL with a subdomain ([#108](#)).
- For [jQuery 1.4.3](#), restored a missing part of the content negotiation header for Ajax.

Publications

- C. Kim*, [H. Lee*](#), M. Jeong, W. Baek, B. Yoon, I. Kim, S. Lim, S. Kim. “torchgpipe: On-the-fly Pipeline Parallelism for Training Giant Models”. [arXiv preprint arXiv:2004.09910](#). (2020)

*Contributed equally.

Public Speeches

- [Remake of Hangulize](#)^{ko} at Golang Korea 2018 and Naver D2
 - [Server architecture of Durango Vol. 3](#)^{ko} at NDC 2018
 - [Python Survival Guide](#)^{ko} at Nexon Talk 2016
 - [Server architecture of Durango Vol. 2](#)^{ko} at NDC 2016
 - [Profiling](#)^{ko} at PyCon KR 2015
 - [Server architecture of Durango](#)^{ko} at NDC 2014
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Languages

- Korean – native
- English – conversational

Education

Computer Software, [Kwangwoon University](#), 2008 – Completed the first year only.