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Github [@PENGUINLIONG](https://github.com/PENGUINLIONG)

Education

2018 – 2021 **Bachelor of Science**, *University of California, Irvine*.

Publication

MOBICOM'22 Romou: Rapidly Generate High-Performance Tensor Kernels for Mobile GPUs
First author; Oral Presenter. Acceptance rate = 17.58% (16/91).

Experience

2020 – 2021 **Researcher**, Heterogeneous and Extreme Computing Group, *MSRA*, Beijing.
(Intern) Optimized convolutional neural network inference on mobile GPUs. Investigated the boundary of hardware performance; optimized compute resource utilization based on discovered GPU architecture detail.

2021 – 2022 **Game Engine Engineer**, Engine Working Group, *Tencent*, Shenzhen.
Designed and implemented asset bakers with NVIDIA OptiX 7.1. Optimized and extended mobile rendering pipeline of Unity Engine and Unreal Engine 4. Balanced visual quality, energy consumption, thermal and performance. Devised texture data compression algorithms. Directed Vulkan rendering backend stability maintenance.

2022 – Now **GPU Development Engineer**, Infra Group, *Taichi Graphics*, Beijing.
Optimized and maintained the Vulkan backend, the compiler passes and the SPIR-V code generator of Taichi Lang. Drove the design and implementation of Taichi program deployment with Taichi Runtime. Managed peripheral demo repositories.

Deep Learning Engineer, *Meshy LLC (Taichi Graphics)*, Beijing.
Design networks and train deep learning models for 3D asset generation, including NeRF, VAE, diffusion and super-resolution models. Develop the dataset processing and representation conversion pipeline.

Projects

SPIR-Q A lightweight SPIR-V reflection library for Vulkan applications in Rust. Supports shader resource enumeration with specialization. Compatible up to SPIR-V 1.5, including ray tracing shaders. Collaborated with contributors, 6700+ downloads.

rspvasm A low-level shading language that compiles to SPIR-V in lightning speed at runtime. Enables cross-platform GPU programming without a heavy runtime.

rTaichi **3rd place winner** project of Taichi Hackathon 2022. Implemented Taichi frontend in Rust with procedural macro, by translating Rust syntax trees to Taichi AOT module and Rust launching code via an internal IR. Similar to nvcc.

Open Source Contributor of [apache/tvm](#), [Tencent/ncnn](#), [gfx-rs/wgpu](#), [BLVC/caffe](#), [taichi-dev/taichi](#) and more. Mostly the implementation and optimization of algorithm/kernel/compiler passes, but also API design.