Eileen YU

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Education

Boston University, Boston 2021 – Present

Master student in Computer Science, expected May 2023 *GPA: 3.9 / 4.0*

Shanghai Jiao Tong University, Shanghai 2017 – 2021

B.S. in Computational Communication *GPA: 3.9 / 4.0*

Skills

- Programming Languages: C++, Python, TypeScript
- Dev Stacks: CMake, Node.js, Docker, Kubernetes, Grafana, Git, Linux Shell

Open Source Contribution

Package Hunter March 2022 – Present

Contributed to GitLab Package Hunter with more features and deployed it in a Cloud Native env.

- Added a new feature to clean up the outdated result to avoid memory leak.
- Migrated the whole system from Docker to Kubernetes, improved scalability by DaemonSet.
- Designed and implemented a Kubernetes middleware embedded in expressJS server.
- Created a Kubernetes operator to dynamically schedule jobs.
- Sped up data transfer through streaming and reduced duplications by K8s PV/PVC.

Project Experience

MIPS Simulator Feb 2022 – May 2022

Wrote a program to simulate MIPS processor including instruction translations, cache memory and pipeline.

- Impelemented a MIPS instruction interpreter to decode R-Type and I-Type codes.
- Simulated main memory and implemented a fully associative cache.
- Executed instructions with the integration of the pipeline and the interpreter & cache.

VPN Tunneling Feb 2022 – Mar 2022

Built a VPN tunneling via a TUN network interface.

- Created and congfigured a TUN interface and a VPN server with Python.
- Wrapped the data from the TUN into the UDP payload field of a new IP packet; setup IP forwarding.
- Monitored the TUN and socket file descriptor with Linux kernal system call to check data flow.

MBTA Chatbot Sept 2021 – Nov 2021

Created a chatbot on Slack to feedback real-time MBTA shedule on various queries.

- Desigend a RESTful API with C++ dependencies Drogon and libcurl, managed with CMake.
- Setup a Slack client with Python script, applied virtual env for dependency installation.
- Built a Docker Image to easily deploy in multiple platforms(MacOS, Windows, Unix, etc).
- Containerized the application in Kubernetes for scalability and robustness.

3D Animation June 2020 – August 2020

Created a 3D model transformer by OpenGL.

- Built a scene with Blender, and added texture coordinates.
- Constructed a sphere with 10,000 triangle pieces, and added texture with dynamic lighting reflection from various perspectives with Blinn-Phong model.
- Reconstructed the model to become an aeroplane and designed a partical system to present flying effects.
- Decomposed the pieces for rendering the animation effect of exploding.