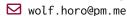
Derek Wu

Senior Backend Engineer



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in Derek Wu

Profile

I'm a Senior Backend Engineer with over 5 years of experience in developing diverse systems and applications. I've played a key role in early-stage startups, building products from the ground up.

With a strong understanding of AI technologies, I've successfully led multiple large-scale AI projects, demonstrating my problem-solving skills and adaptability.

I'm currently seeking a Senior Backend Engineer position, ideally in a remote work environment, and I'm open to AI-related opportunities where I can contribute my expertise.

Experience

12/2022 - Present

Backend & AI Engineer, Transferhelper

- Developed multiple intelligent lending strategies on Bitfinex, yielding a 15% APR over six months.
- Built robust backend services using Kubernetes, PostgreSQL, and Redis on Google Cloud Platform.
- Implemented comprehensive monitoring solutions with Grafana, Prometheus, and Slack integration.
- Orchestrated a CI/CD pipeline utilizing Google Cloud Build, attaining a unit test coverage rate of over 90%.
- Researched and applied advanced AI techniques to convert human photos into 3D models.
- Migrated infrastructure from hosted Kubernetes to virtual machines, resulting in budget savings of up to 53%.

01/2022 - 08/2022

Backend Engineer, *Pinkoi*

- Led a major upgrade and refactor of an outdated and complex coupon logic system, improving maintainability and performance.
- Collaborated with the finance team to develop a new invoice billboard feature.
- Demonstrated strong ability to quickly diagnose and resolve issues within a large-scale system.

07/2021 - 11/2021

Backend Engineer, Meteo Piano

Proposed and developed the first fully open-source end-to-end solution for Optical Music Recognition (OMR) problem, published as "oemer" on GitHub.

- Integrated existing tools into a distributed RESTful API server within one month..
- Deployed services on AWS EC2, leveraging S3, VPC, ECS, and Load Balancer..

06/2017 - 12/2020

Research Assistant, IIS Academia Sinica

• Presented two IEEE conference papers and authored one IEEE journal paper, pioneering research on the note-level multi-instrument transcription problem. Consolidated lab research into a unified Python package, omnizart, published on GitHub, which has garnered over 1,000 stars.

07/2019 - 06/2020

Backend Engineer Intern, *TrendMicro*

- Linked the authentication process between the internal ADFS system and AWS services, solving a long-standing cross-team issue within two months.
- Optimized the CI/CD pipeline, reducing runtime by up to 50%.
- Integrated a new Blue/Green deployment strategy on AWS for smoother releases.
- Streamlined deployment scripts for enhanced readability and implemented unit tests to ensure accuracy.
- Translated machine learning code from Python to Java for backend integration.

Education

2018 – 2020 M.Sc. Computer Science, National Taiwan Normal University.

Thesis title: Multi-Instrument Automatic Music Transcription With Self-Attention-Based Instance Segmentation.

2014 – 2018 **B.Sc. Computer Science**, National Taiwan Normal University.

Skills

Languages Native Mandarin Chinese speaker; strong proficiency in reading and writing English.

Coding Python, FastAPI, Rust, asynchronous programming.

Databases PostgreSQL, MySQL.

Infra Google Cloud Platform (GCP), Amazon Web Services (AWS), Docker, Kubernetes, GitHub, Redis, Nginx, Linux.

Web Dev HTML, CSS, JavaScript, Vue.js.

Misc. Academic research, machine learning, TensorFlow, PyTorch, scikit-learn, NumPy, OpenCV.

Research Publications

- **Y. T. Wu**, Y.-J. Luo, T.-P. Chen, *et al.*, "Omnizart: A general toolbox for automatic music transcription," *Journal of Open Source Software*, vol. 6, no. 68, p. 3391, 2021. ODI: 10.21105/joss.03391.
- Y. T. Wu, B. Chen, and L. Su, "Multi-instrument automatic music transcription with self-attention-based instance segmentation," *IEEE/ACM Transactions on Audio, Speech, and Language Processing*, vol. 28, pp. 2796–2809, 2020. ODI: 10.1109/TASLP.2020.3030482.
- Y. T. Wu, B. Chen, and L. Su, "Polyphonic music transcription with semantic segmentation," in *ICASSP* 2019 2019 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), 2019, pp. 166–170. ODI: 10.1109/ICASSP.2019.8682605.
- Y. T. Wu, B. Chen, and L. Su, "Automatic music transcription leveraging generalized cepstral features and deep learning," in 2018 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), 2018, pp. 401–405. ODI: 10.1109/ICASSP.2018.8462079.

Miscellaneous Experience

Community Engagement

2022 – Present Volunteer of PyCon TW - Actively participating in organizing and supporting events for the Python community.

One of the podcast host of PyCast - Co-hosting a podcast focused on discussions around Python and its ecosystem.