Zicheng Wei

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EDUCATION

- **University of California San Diego** — California, US
  Master of Science in Electrical and Computer Engineering — *September 2021 - December 2022*
  Specialization: *Machine Learning & Data Science*

- **Peking University** — Beijing, China
  Bachelor of Science in Computer Science — *September 2016 - July 2020*

WORK EXPERIENCE

- **TuSimple – Application & Infrastructure Group** — Beijing, China
  Information Security Development Intern — *April 2021 - August 2021*
  - **Secret Injector Service**: Created a user token management system enabling automatic token injection to Kubernetes container via Hashicorp Vault. Deployed web hook trigger to automatically launch sidecar container for injection. Implemented Kubernetes API agent for related K8S resource management.
  - **ABAC Authentication & Authorization Design**: Promoted the current identity system from simple authentication to a centralized authorization and permission administration service. Investigated standard authentication protocol including OIDC & SAML; Designed Attribute-Based Access Control policy system for infrastructure applications, restricting access to frontend components, backend API and backend database objects.
  - **Identity System Demo Development**: Implemented a feature demo constructed by Single-Page Application with Vue and backend service with Django.

- **SenseTime – Shared Service Center** — Beijing, China
  Computer Vision Platform Development Intern, honored as the "Star of Future" — *August 2020 - March 2021*
  - **Project – Automatic Model-Launching System**: Change the pipeline of implementing new Deep Learning models from purely manual work to automatic pipeline. Reduced the process of real-life service implementation of newly promoted multi-media processing models from 3 weeks to less than 1 week.
  - **System Design**: Designed an automatic deployment system for Deep Learning framework enabling both real-time call and asynchronous process with input uploaded and stored.
  - **Multi-Media Processing**: Implement multi-media pre- and post-processing including video segmentation & combination, resizing, frame feature extraction via FFMpeg
  - **Content Management & API**: Designed & tested RESTful API for resources to communicate with front-end service. Implemented a metadata management system enabling CRUD with MySQL. Deployed OSS for file storage.
  - **Inter-Service Communication**: Implement gRPC API between micro-services. Enabled robust message communication module for asynchronous tasks via Kafka data streaming.

- **ByteDance - Commercial Product Branch** — Beijing, China
  Data Engineering Intern — *February 2020 - July 2020*
  - **Snippets Design**: Setup snippets based on multi-platform applications e.g. iOS, Android, H5 etc. and correspond quality assurance.
  - **RDBMS Feature Design for Structural Data**: Designed & implemented CRUD strategies of multiple structural data in RDBMSs such as Hive & MySQL. The designed feature has extended the content category system from single layer to multiple layer with similar response time.
  - **Data Analysis**: Analyzed client behavior of 100k+ users via HiveSQL and designed and implemented auto-generated charts for daily report via Clickhouse.

RESEARCH EXPERIENCE

- **Machine Learning, Perception, and Cognition Lab** — University of California San Diego
  Student Research Intern — *July 2019 - December 2019*
  - **SOTA Seq2Seq Model Survey**: Conducted performance analysis on various Sequence-to-Sequence models including Transformer & Fully Convolutional Model through FAIRSeq.
  - **Transfer Learning Model Investigation**: Implemented different transfer learning frameworks (e.g. Finetuning, Mix-of-Experts, Meta-Learning) to improve pretrained model.
  - **Meta-Learning Framework Implementation**: Designed & implemented a novel Meta-Learning multi-lingual translation pipeline based on FAIRSeq.

- **Institute of Network Computing and Information System** — Peking University
  Student Research Intern — *February 2020 - May 2020*
  - **Model Investigation**: Implemented a comparison system based on WMT human evaluation & dataset on automatic machine translation evaluation algorithms.
  - **SOTA Reproduction**: Reproduced several leading evaluation systems on to-English translation task.
  - **Metrics Design**: Designed & developed a new metrics based on word embedding and achieved high correlation with human result in several tasks.

SKILLS SUMMARY

- **Languages**: Go, Python, C++, Java, SQL, JavaScript, Shell, MATLAB
- **Frameworks**: Kafka, Django, Vue, PyTorch, FAIRSeq, Scikit
- **Tools**: gRPC, Protobuf, Kubernetes, Docker, GIT, MySQL, Hive, ffmpeg, Azure DevOps