Mingfei Guo

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EDUCATION

Peking University Sept. 2018 – Present

Bachelor of Electronic Engineering

Overall GPA: 3.71/4.00, Ranking: Top 10%

WES Verified GPA: 3.83/4.00

University of California at Berkeley May 2021 – Present

Research Assistant of Berkeley Artificial Intelligence Research Lab, Advisor: Prof. Kurt Keutzer

RESEARCH INTERESTS

Data Mining; Efficient Deep Learning; Automated Machine Learning

PUBLICATIONS

How does Truth Evolve into Fake News? An Empirical Study of Fake News Evolution

Mingfei Guo, Xiuying Chen, Juntao Li, Dongyan Zhao, Rui Yan

accepted by News Recommendation and Intelligence Workshop, The Web Conference 2021 (WWW 2021)

PREPRINTS

UnrealNAS: Can We Search Neural Architectures with Unreal Data?

Kaicheng Zhou, Guohao Li, Zhen Dong, Qiang Zhou, **Mingfei Guo**, Bernard Ghanem, Kurt Keutzer, Shanghang Zhang

submitted to The Thirty-Fifth AAAI Conference on Artificial Intelligence (AAAI 2021)

Be Aware of the Hot Zone: Predicting Hazard Area via Search-based Ensemble to Intervene COVID-19

Mingfei Guo, Zhenxin Fu, Dongyan Zhao, Rui Yan

submitted to IEEE Transactions on Knowledge and Data Engineering (TKDE 2021)

RESEARCH EXPERIENCE

Uniform Quantization Sep. 2021 – Present

Advisor: Kurt Keutzer, Professor, University of California, Berkeley

- Optimized the trade-off between network channel dimensions and uniform quantization bits under memory constraints
- Proposed three initialization strategies for increased channel dimensions in low-bit situations
- Increased model capacity and reduced error by 3% for low-bit layer-wise quantization

Stock Movement Prediction Sep. 2021 – Dec. 2021

Advisor: Weiheng Liao, Renmin University of China

- Proposed a novel Prediction & Explanation Model for stock price movement prediction
- Employed a two-stage attention mechanism to produce the prediction from multiple predictions at different time steps
- Conducted experiments on real-world datasets (Chinese stock news) and verified the effectiveness of the approach

UnrealNAS May 2021 – Aug. 2021

Advisor: Kurt Keutzer, Professor, University of California, Berkeley

- Explored the necessity of ground-truth labels for Neural Architecture Search (NAS)
- Implemented popular differentiable NAS methods (DARTS, SGAS) on randomly labeled datasets
- Analyzed the generalization of searched architectures through experiments on CIFAR, ImageNet and CheXpert (chest X-ray)
- Empirically demonstrated that randomly labeled non-trivial datasets could prevent overfitting and improve NAS performance

COVID-19 Prediction Oct. 2020 – Mar. 2021

Advisor: Rui Yan, Assistant Professor, Peking University

- Predicted hazard areas based on confirmed infections using geographical information
- Proposed a pipeline including data crawling, feature extraction, model training, and multi-model ensemble
- Applied exploration algorithms (ACO, NAS) for automatic ensemble
- Improved COVID-19 hazard area prediction and adapted the pipeline to the online data stream

Fake News Evolution Mar. 2020 – June 2020

Advisor: Rui Yan, Assistant Professor, Peking University

- Proposed a fake news evolution dataset to track errors and inaccuracies that turned facts into fake news
- Split the fake news evolution process into three stages (facts, fake news, and evolved fake news) for simplicity
- Extracted text features using NLP techniques (TF-IDF, RAKE, VADER)

WORK EXPERIENCE

Google | *Software Engineering Intern* July 2021 – Oct. 2021

- Designed APIs to archive, filter, and load vendor metadata (profile, pricing, language pairs)
- Moved data storage from databases to file systems, setting the default query engine to F1 to improve data I/O performance
- Visualized historical vendor metadata on PLX dashboards to gain business insights

Google | *Software Product Sprint Program* June 2020 – Sept. 2020

- Built a refrigerator management application for android that tracks product expiry dates
- Designed an illustrated interface and communication APIs using HTML, CSS, and JavaScript
- Allowed users to snap a photo, upload it into their virtual refrigerator, and set an expiration date

Shanghai Kent Instrument | *Software Engineering Intern* Jan. 2020 – Mar. 2020

- Created packages in VB to auto-fill form fields without human intervention
- Reduced error rate from 4% to 0.01% and saved 4 man-hours per day

PROJECT EXPERIENCE

Piano Tiles | *Course Project for Advanced Digital Logic Design* May 2020 – June 2020

- Implemented the game Piano Tiles with an FPGA Board, a MIDI keyboard, and an RGB monitor
- Synthesized realistic piano sounds using an audio D/A converter chip
- Designed a First-In-First-Out framebuffer for video displays of music sheets

Handwritten Music Scanner | *Course Project for Intelligent Hardware* Nov. 2019 – Dec. 2019

- Implemented optical music recognition (OMR) on a single-board computer to read handwritten sheet music
- Augmented sound effects using a virtual analog audio synthesizer and an audio power amplifier
- Recognized standard music notations (pitch, duration) and played the music

AWARDS

- Merit Student of Peking University (5%, all three years, 2018 & 2019 & 2020)
- Peking University Scholarship (5%, 2020)
- Shenzhen Stock Exchange Scholarship (5%, 2019)

TECHNICAL SKILLS

Programming Languages: Python, C/C++, Java, JavaScript, Verilog
Platforms: PyTorch, Tensorflow (& Keras)
Developer Tools: PyCharm, VS Code, Cadence, LTSpice, Xilinx Vivado