

Chen Huang

SENIOR DEEP LEARNING RESEARCH ENGINEER

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Summary

Currently senior deep learning research engineer at Apple Inc. Rich experience specializing in computer vision and machine learning, especially in video & 3D generative AI, stable diffusion, neural radiance fields (NeRF), 3D computer vision detection and segmentation, deep learning model inference acceleration (compression, quantization, mixed precision) for mobile devices. Excellent coding skills in C/C++, Python and related deep learning packages. Strong aptitude for working on multiple projects in fast-paced environment.

Education

University of Missouri

PH.D. IN ELECTRICAL AND COMPUTER ENGINEERING

major in deep learning, computer vision, object detection and fine-grained recognition.

Columbia, Missouri, U.S.A

Aug. 2011 - Dec. 2017

Beihang University

B.S. IN DETECTION GUIDANCE AND CONTROL TECHNOLOGY

Beijing, China

Sep. 2006 - June. 2010

Work Experience

Apple Inc.

SENIOR DEEP LEARNING RESEARCH ENGINEER

- Building large foundation model for video generation and 3D content creation from text or image.
- Working on 3D point cloud detection and segmentation, Apple LiDAR scanner and AR/VR related research.
- Developed the tools to map deep networks to customized hardware, fine-tuning workflow to optimize for best performance & power trade-off.
- Compressed and quantized Apple FaceID models, reduced the model size by 75%, lessened working memory, accelerated inferences and lowered power consumption with nearly no accuracy loss.

Cupertino, California, U.S.A

Sep. 2017 - present

Microsoft Research

COMPUTER VISION RESEARCH INTERN

- Developed a deep learning based pedestrian detection algorithm which achieved state-of-the-art accuracy on real-time.
- Deployed proposed deep learning network to Intel customized deep learning chip, delivered algorithm to certain Microsoft products.

Redmond, Washington, U.S.A

Mar. 2017 - Sep. 2017

Apple Inc.

DEEP LEARNING RESEARCH INTERN

- Implemented dark knowledge distillation to train a lightweight network to mimic the behavior of parameter-heavy network.
- Reduced the memory & storage requirement of neural networks by 7x without affecting their performance accuracy.
- Achieved state-of-the-art face recognition performance on several public benchmark datasets with much smaller networks.

Cupertino, California, U.S.A

May. 2016 - Sep. 2016

Publications

Cavia: Camera-controllable Multi-view Video Diffusion with View-Integrated Attention

Dejia Xu, Yifan Jiang, Chen Huang, Liangchen Song, Thorsten Gernoth, Liangliang Cao, Zhangyang Wang, Hao Tang
(Oct. 2024). *arXiv*, 2024

Spatially supervised recurrent convolutional neural networks for visual object tracking

Guanghan Ning, Zhi Zhang, Chen Huang, Xiaobo Ren, Haohong Wang, Canhui Cai, Zhihai He
Circuits and Systems (ISCAS), 2017 IEEE International Symposium on, 2017

Visual Informatics Tools for Supporting Large-Scale Collaborative Wildlife Monitoring with Citizen Scientists

Zhihai He, Roland Kays, Zhi Zhang, Guanghan Ning, Chen Huang, Tony X. Han, Josh Millsbaugh, Tavis Forrester, William McShea
IEEE Circuits and Systems Magazine 16.1 (2016) pp. 73–86. 2016

Constellational Contour Parsing for Deformable Object Detection

Chen Huang, Tony X Han, Wenming Cao, Zhihai He
Journal of Visual Communication and Image Representation (2016). 2016

Task-driven Progressive Part Localization for Fine-grained Recognition

Chen Huang, Zhihai He, Wenming Cao
IEEE Transactions on Multimedia (2016). 2016

Honors & Awards

2011-2017 **Research Assistantship**, University of Missouri

Columbia, MO

2016 **Student Travel Grant**, IEEE Winter Conference on Applications of Computer Vision

Lake Placid, NY

2010 **Outstanding Student Scholarship**, Beihang University

Beijing, China

2007 **National Scholarship for Encouragement**, Beihang University

Beijing, China

Skills

Programming JAVA, C/C++, Python, Lua, MATLAB

Web HTML5, JavaScript, Jekyll, Bootstrap

Package PyTorch, TensorFlow, JAX, MxNet, Keras

Others \LaTeX , Markdown, CMake, Valgrind, AWS