MING-RUEY(RAY) CHOU

Fields: Computer vision algorithm development and optimization
Tools & Libraries: OpenCV, Tensorflow, Jax, Docker, Git
Programming Languages: Python, C#, C++, CUDA
Operating System: Linux, Windows
Software Design: Object-oriented programming, Test-driven development

MingRuey
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Summary

Ray is a software engineer with 3-years of experience applying digital image processing and deep learning techniques to solve real-world problems. He develops new algorithms, writes production-level codes, and optimizes them for real-time usage.

Experience

Machine Learning Engineer - Geosciences of Princeton University, NJ, USA *2021 JUL - 2021 DEC*

Physics assisted machine learning for understanding ice dynamics at Lai Research Group

· Develop and conduct systematic tests on neural networks combined with a physics-aware loss function

· Lead on setting up infrastructure aiming for massively parallel computing on the CPU/GPU cluster; also provide mentorship on lab members around the code development cycle

Computer Vision Engineer, Team Lead - UTECHZONE, Taipei, Taiwan *2019 FEB - 2021 JUN*

Real-time defect detection in PCB & wafer manufacturing

Promotion to team lead: 2020 Sep

· Lead a team of four to develop a solution blending deep-learning-based object detection with morphological processing/pattern matching; reduce the false-negative rate by from 1000 to 100 ppm at >90% overall accuracy

· Key developer of a defect detection system targeting for CPU-GPU heterogeneous device; optimize program throughput via multithreading and offloading computations onto GPU

· Invent novel image processing algorithms: an algorithm for optical character verification, or OCV, with >80% accuracy, outperforming the existing (<50% accuracy); a fast and robust short and open circuit detector for wafer manufacturing

Join as computer vision engineer

· Conduct failure analysis and performance improvement on object detection and classification models

· Design and develop a Python-based deep learning engine which becomes the canonical library of the company; set up automated tests for the library from scratch to >70% coverage

Education

M.Sc. in Physics - National Taiwan University *2013 SEP - 2016 JUN*

Thesis - Rheometry on Concentrated Suspension of Soft Particles

· Publish on Soft Matter - doi.org/10.1039/D0SM00405G

· Mandarin website - www.phys.sinica.edu.tw/jctsai/Ray2016/

B.Sc. in Physics - National Taiwan University *2009 SEP - 2013 JUN*

Other Experience

Teaching Assistant - Geosciences Department of Princeton University, NJ, USA *2021 Fall*

AOS551 Deep Learning in Geophysical Fluid Dynamics

Course/Project Designer - Twin Oaks Education, Taiwan *2018 - Current*

21st century learning for high school students: See-Think-Wonder Challenge, Camp for Business World

Substitute Services in Education - Xinyi Elementary School, Hualien Taiwan *2016 SEP - 2017 OCT*