Hanke Chen

Email: hanke@cmu.edu ✉

⌘ Website: cs.cmu.edu/˜hankec LinkedIn: linkedin.com/in/chenhanke in

○ Github: github.com/kokecacao **Current Interests**: I build artist-friendly systems from CV/CG research

EDUCATION

Carnegie Mellon University (CMU)   Pittsburgh, PA
Bachelor of Computer Science and Arts in Computer Science and Art   Aug 2020 - No Planned Graduation Date

Courses: Machine Learning, Deep Learning, AI for Robotics, Distributed System, Computer System, Computer Graphics, Theoretical CS, Theoretical Quantum Computing, Data Structures and Algorithms, Functional Programming, Compiler, Statistics, Probability, Generative Computer Vision (Graduate Level)

EXPERIENCE

Stealth   Remote
Research and Development   *Sep 2023 - Present*

- ○ **Skills**: Kubernetes, ReactJS, Reddis, Computer Graphics, Computer Vision

Midjourney   San Francisco, CA
Research and Development   *Jun 2023 - Sep 2023*

- ○ Some secret research?

Wireless Sensing and Embedded System (WiSE) Lab @ CMU   Pittsburgh, PA
Research Assistance   *May 2022 - May 2023*

- ○ **Skills**: CUDA Programming, C++, PyTorch, Machine Learning, Computer Graphics, Computer Vision
- ○ **Spring 2023**: A 1-FPS realtime training pipeline of NeRF. (See FART-NeRF Below)
- ○ **Summer 2022**: Worked with Prof.Anthony Rowe on accelerating hash-encoded Neural Radiance Field. Designed and implemented realtime ML training pipeline that leverage occupancy-grid guided sampling, CUDA kernels, and tetrahedral dilation to achieve 10x speedup in training time than state-of-the-art for 3D reconstruction on real-world bounded scenes.

DeepVocab @ CMU Olympus Incubator   Pittsburgh, PA
Co-founder, Machine Learning Engineer, Software Engineer   *Jun 2020 - Oct 2022*

- ○ **Skills**: Computer Vision, Natural Language Processing, CI/CD, SQLite, HiveDB, Dart, Flutter, GraphQL, Nginx
- ○ Managed the team of 8 people to design and develop the frontend+backend of an Android+IOS vocabulary-learning app that uses CV and NLP to predict memory decay. Implemented Model-View-ViewModel with Provider architecture for maintainability. β-testing on Testflight.

KokiCraft Network   Remote
Founder, Software Engineer   *2014 - 2017*

- ○ **Skills**: Java, MySQL, Game Engine Development, Network Programming
- ○ Online game played by 300,000+ players. Most popular GTA Minecraft Server in MCBBS Forum. Player experience documented by influencer and streamers. Programmed large game backend logic and resource management engine & update new game features monthly. Implemented automatic hack client banning and prevented UDP flood.

PROJECTS

Scotty3D: A Mesh+Animation Editor and Renderer w/ General Relativity	May 2022 - Dec 2022
Distributed Bitcoin Miner: A fault-tolerant UDP Protocol and Scheduler	Aug 2022 - Dec 2022
CryptoEggs: AI Generated Game on Blockchain	Jan 2022 - Jun 2022

Designed and deployed robust Smart Contract on Gnosis Chain. Use Resnet50 to automate Cryptomon generation. (PyTorch, NodeJS, HTML, Javascript, Typescript, CSS, Flask, Solidity) [link]

RedstoneTorch: A Computer Vision Framework for Competitive Programing   Jan 2018 - Jan 2020
A large pipeline built for Competitive Programming based on PyTorch with 2,000,000+ lines of code. [link]

PUBLICATIONS

FART-NeRF: Fast Accumulative Realtime Training of NeRF   1st author, in progress (*Jan '23*)
We proposed background separation, Occupancy Grid, Multi-Level Tensorized Page Table to build the first explicit high-res NeRF representation with low memory cost trained in 1FPS on 3 depth cameras.

Practical NeRFology: A Brief Commentary on Neural Radiance Fields   1st author, [link] (*Jan '23*)
A commentary on NeRF development related to depth priors, training speed, and dynamic scenes.

Extracting Cellular Location of Human Proteins Using Deep Learning   1st author, [link] (*Dec '18*)
Proposed a proteins modeling system with Residue+Squeeze-Excitation layers (and many tricks) to identify 27 cell types within 28 subcellular locations in microscopy images. System surpassed human accuracy by 35%.

AWARDS & HONORS

· **World 1st Place (Solo)** , Kaggle Histopathologic Cancer Detection Competition   *Jan 2019*

Teaching, Volunteer, and Consulting

Paid Expert @ Gerson Lehrman Group, Inc.   since *March 2024*

Consulting Expert @ Tegus, Inc.   since *February 2024*

Instructor @ CMU StuCo 98-205 - Introduction to Minecraft   Pittsburgh, PA
Designed course for technical Minecraft. Developed automatic grading and server infrastructure. Jan 2023 - Present

Project Lead and Technical Artist @ Game Creation Society   Pittsburgh, PA
Led and worked with 3 teams on 3 video games. (Unreal, Unity, Blender, Houdini, ZBrush)   May 2021 - Jun 2022

Network Security Consultant @ FIRST Robotics   College Park, MD
Monitor network security by WiFi sniffing during regional FTC competition. (Wireshark)   Jan 2018

References

Nelson Zhang	Prof. Anthony Rowe	Prof. Golan Levin
Midjourney Inc.	Carnegie Mellon University	Carnegie Mellon University
	5000 Forbes Ave, Pittsburgh	5000 Forbes Ave, Pittsburgh
CA 94107	PA 15213	PA 15213
✉ nelson[at]altar[dot]ai	✉ agr[at]andrew[dot]cmu[dot]edu	✉ golan[at]andrew[dot]cmu[dot]edu

For more, see: [CV]