Hanke Chen

Website: kokecacao.me/?page=sanity
GitHub: github.com/kokecacao
Email: hanke@gatech.edu
LinkedIn: linkedin.com/in/chenhanke
Interests: 3D Generation, Graphics Systems, tools for artists

Education

Georgia Institute of Technology (GT) — Atlanta, GA
Ph.D. in Computer Science — *Aug 2026 - Present*

Carnegie Mellon University (CMU) — Pittsburgh, PA
Bachelor of Computer Science and Arts in Computer Science and Art — *Aug 2020 - May 2026*

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)

Sandy Spring Friends School (SSFS) — Silver Spring, MD
Graduated w/ Honor Thesis: Bengali A.I. Handwritten Grapheme Classification — *Aug 2016 - Jun 2020*

Industry Experience

VAST — Beijing, China + Remote
Research and Development — *May 2026 - Present*

- RLVR for 3D.

Stealth @ Private Investors — San Francisco, CA + Remote
Co-founder, Research and Development — *Sep 2023 - Present*

- Supported by U.S. Venture Capital (Afore Capital 2024 Summer Batch). Building a next-gen 3D content creation tool.
- **Skills**: Kubernetes, React, Redis, DeepSpeed, Data Mining

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

- Conducted research and development on 3D asset generation for their potential 3D generation product.

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

- Led a team of 8 people. Developed a product that uses CV and NLP to predict memory decay for reminders. [code]
- **Skills**: Computer Vision, Natural Language Processing, CI/CD, SQLite, HiveDB, Dart, Flutter, GraphQL, NGINX

KokiCraft Network — Shenzhen, China
Solo Founder, Software Engineer — *2014 - 2018*

- Online game played by 350k players. Commercially successful with monthly gameplay updates.
- **Skills**: Java, MySQL, Game Engine Development, Network Programming

Academic Experience

Simulation Intelligence Group (SIG) @ CMU — Pittsburgh, PA
Research Collaboration — *Sep 2024 - May 2026*

- Multiple publications about 3D scene generation advised by Prof. Minchen Li.

Wireless Sensing and Embedded Systems (WiSE) Lab @ CMU — Pittsburgh, PA
Research Assistant — *May 2022 - May 2023*

- Sped up full NeRF training from 40 sec to 1 sec w/ multilevel page table, advised by Prof. Anthony Rowe.
- **Skills**: CUDA Programming, C++, PyTorch, Computer Graphics, Computer Vision

Robotics At Maryland (R@M) at UMD — College Park, MD
Computer Vision Engineer — *2018 - 2020*

- Developed underwater robotics object localization using deep learning for UMD's club in AUVSI & ONR's Robosub competition. Implemented & improved Grad-CAM (2016) for semi-supervised segmentation w/ partially labeled data.
- **Skills**: OpenCV, PyTorch, TensorBoard

Selected Publications

All research with GIF thumbnails: kokecacao.me/?page=sanity#research. (†: Advisor. *: First or co-first author.)

Magic Easel: Environment-Grounded Visual Inspiration for Gen AI Creativity Support NordiCHI 2026
Lia Sparingga Purnamasari*, Hanke Chen*, Shivani Kannan, Joseph Ratliff, Haeyoung Kim†

PAT3D: Physics-Augmented Text-to-3D Scene Generation ICLR 2026
Guying Lin, Kemeng Huang, Michael Liu, Ruihan Gao, Hanke Chen, Lyuhao Chen, Beijia Lu, Taku Komura†, Yuan Liu†, Jun-Yan Zhu†, Minchen Li† [PDF]

TRELLISWorld: Training-Free World Generation from Object Generators arXiv 2025
Hanke Chen*, Yuan Liu†, Minchen Li†

MCDiffuse v1: Diffusion Modelings for Minecraft preprint 2024
Hanke Chen*

Practical NeRFology: A Brief Commentary on Neural Radiance Fields preprint 2023
Hanke Chen*

Extracting Cellular Location of Human Proteins Using Deep Learning arXiv 2020
Hanke Chen* [code]

Selected Awards & Honors & Scholarships

- **NSF Graduate Research Fellowship Program ($159,000)** , National Science Foundation — *2026 - 2030*
- **Judges' Choice Award** , Global Game Jam 2025 (Lab Escape) — *Jan 2025*
- **Non-Traditional Award** , Global Game Jam 2024 (TeleDot) — *Jan 2024*
- **Frank Brunckhorst Presidential Scholarship (1%-2% in University)** ×3 **times** , CMU — *2020 - 2023*
- **Dean's List** ×3 , CMU School of Computer Science and College of Fine Arts — *Aug 2020 - Dec 2022*
- **Lv.2 Planet Award (Top 50, Global, Solo)** , DarkForest v0.6 (Round 5) ∼ $2,000 — *Feb 2022*
- **Regina Gouger Miller Art Scholarship** , CMU — *2020 - 2021*
- **Anna Ophelia Dowden Award (4 Students in School of Art)** , CMU — *Oct 2020*
- **Bronze Medal (Global, Team)** , Kaggle SIIM-ACR Pneumothorax Segmentation Competition — *Jun 2019*
- **1st Place in the World (Soloed)** , Kaggle Histopathologic Cancer Detection Competition — *Jan 2019*

Teaching & Consulting & Service

Paid Expert: @ Gerson Lehrman Group, Inc. — since *Mar 2024*

Consulting Expert: @ Tegus, Inc. — since *Feb 2024*

Teaching Assistant: CS-8803-O27 Computer Graphics in the AI Era @ Gatech — *F26*

Instructor: CMU StuCo 98-205 - Introduction to Minecraft — *S23, F23, S24, F24, S25, F25*
Pittsburgh, PA. Designed course for technical Minecraft. Developed automatic grading and server infrastructure.

Reviewer: Computers & Graphics (CAG) — *2025*

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

Network Security Consultant: FIRST Robotics — *Jan 2018*
College Park, MD. Monitored network security by Wi-Fi sniffing during regional FTC competition. (Wireshark)

Talks & Presentations

- **Guest Lecture: Playful Interaction** @ CMU 51-304/51-604 — *Mar 10, 2025*
- **Distribution Matching** @ SIG — *Oct 4, 2024*
- **NeRF** @ WiSE Lab — *Aug 8, 2022*

Projects

KokiPad: An Experimental Keyboard — May 2022 - Present
Designed, programmed, and manufactured ∞-rollover keyboard and driver. PCB is robust against differential signalling, ESD, and electrical surge. (PCB Design, Soldering, STM32, 3D Printing, CNC) [code]

Multilingual Text-to-Speech Model — 2024
Developed a multilingual text-to-speech model, primarily for Chinese, to read Japanese light novels. [video]

Scotty3D: A Blender-Like CAD Software — May 2022 - Dec 2022
Programmed a real-time rendering and ray-tracing pipeline. Designed algorithms for a mesh editor, an animation editor, and a black hole renderer based on general relativity, using various acceleration data structures (C++, Computer Graphics)

Distributed Bitcoin Miner: A Mining Farm Protocol — Aug 2022 - Dec 2022
A UDP-based system for distributed bitcoin mining. Robust against server & client failures. Designed and implemented a fair scheduler and dynamic load balancing. Optimized for fast response. (Go, Distributed System)

Quantum: A Quantum Computer Simulator — Sep 2022 - Oct 2022
A CLI program to (inefficiently) simulate any quantum program analytically (Go)

MineShader: A Minecraft Shader — Apr 2022
Developed a reverse pixel shader that significantly improved Minecraft graphics (GLSL, OpenGL) [tutorial]

2ch3: A Web3 Social Media Platform Owned by People — Mar 2022
A Chrome plugin and contract on the Gnosis chain (Node.js, Solidity, Flask)

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

Commission

Projection Mapping for Public Performances at Church of Ascension — Apr 29, 2024
Pittsburgh, PA. MIDI-controlled live diffusion generation (16 FPS) with ControlNet and KatUI.

Open-Source Contribution

- **Nerfstudio** : a Neural Radiance Field Training Framework — *fixed a spherical harmonics rendering bug*
- **BottomNavigationBadge** : Flutter UI Component — *made substantial changes and fixed major bugs*
- **SQL Injection on Stanford's Website** : vulnerability disclosure — *incidentally discovered and reported*

Games

- **CityScraper** : an interactive city-building artwork *2026*
- **Lab Escape** : a local co-op puzzle game *Jan 2025*
- **Teledot** : a multiplayer strategy game *Jan 2024*
- **SwingSimulator** : a meta-game *Feb 2023*
- **That Time I Was Reincarnated As A Ferret And Forced To Climb For My Freedom**: a climbing adventure game *2023*
- **CryptoEggs**: an AI-generated breeding simulation game on the Gnosis blockchain [play] [project] *Jan 2022 - Jun 2022*
- **Empyrean (Project-Sapphire)** : MMO FPS Game in the Browser *Jan 2021 - Jun 2021*
- **Winter** : a snowstorm scene with Unity *May 2021*

Skills

- **Languages**: C++, C, CUDA, Go, Java, Python, Solidity, SQL, SML, Dart, MATLAB, JavaScript, HTML, CSS, GLSL
- **Frameworks**: PyTorch, TensorFlow, Keras, NGINX, React, MySQL, SQLite, Redis, Flask, FastAPI, Flutter, GraphQL, GCP, Terraform, Docker, Kubernetes
- **PhysComp**: Linux, PCB Design, Soldering, STM32, Arduino, Raspberry Pi, 3D Printing, Woodworking, CNC
- **Tools**: Unreal, Unity, Blender, Houdini, ZBrush, Processing, p5.js, FL Studio, After Effects, Fusion 360

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