Hanke Chen

U.S. Permanent Resident

General Info

15309 Hannans Way Rockville MD 20853 | (301) 605-3574
hanke.chen@ssfs.org; i@chenhanke.me; i@kokecacao.me
Intended Major: Data Science (or Comp. Sci.); Physics; Art

Webpage

General: www.chenhanke.me Tech: www.kokecacao.me
Portfolio: art.chenhanke.me Github: github.com/kokecacao
Research: scholar.google.com/citations?user=fsGGR_8AAAAJ

Education

-- Schools --

Shenzhen Experimental School (2013-2015)
Sandy Spring Friends School, Sandy Spring, MD;

- 3.92 / 4.00 GPA (Unweighted); Unranked;
- Completed all science/math AP the school offers

-- Extra Courses --

Udacity Machine Learning Nanodegree [graduated 2017]
Udacity Deep Learning Nanodegree [graduated 2018]
AI for Robotics in Stanford Pre-Collegiate [completed 2018]
Coursera UIUC Data Mining Specialization [current enroll]

Experience

KokiCraft Network Game Server/Owner, CEO, Programmer (2014 - 2017)

- Founded KokiCraft Network: 1st GTA Minecraft Server in China.
- Designed & Programed Game Mechanism + User Interface (UI)
- Update monthly to introduce new game elements.
- Defended against 50+ DDoS attacks / month.
- 344,941 players, $3500+ profit, $500/month profit when open donation.
- Maintain the server free for 2/3 of time.
- managed customer support team

Robotics At Maryland (R@M) at UMD/Computer Vision Engineer (2018 - now)

- Develop UMD club's underwater robotics vision althorthm using Deep Learning for AUVSI & ONR's Robosub competition.
- Implemented, and improved "GradCam" in 2016 research paper to perform semi-supervised segmentation w/ partially labeled data.

Writing Center Tutor/Student Tutor (2018 - now)

- The only non-native English speaker selected by school
- Tutored 20+ Science, History, and English essays
- Volunteered to help in regular English classes as a TA.

Terasology: Making Open Source Game/Intern, Programmer (2018 - 2019)

- Hands-on experience w/ open-source game Terasology's development team
- Google Code-in Competition Certificates
- Introduced "The End" world generator and "Sponge" block to the game.

SSFS Robotics Team/Captain, Founder (2017 - now)

- Founded Robotics team w/ 10% school population.
- Fundraised $1230 from school; $3305 from Kuka, Leidos, NAEC companies.
- Won FTC Judges Award & Local 1st (1st Robotics award ever in school's history)
- Represent school attending US Science & Engineering Festival
- Tutor members about coding. Cultivate new leaders after I graduate.

Kaggle/Student Researcher, Data Scientist (2019 - now)

- Use ML techniques to competively build predictive models solving real-world problems
- Won 51 community medals (5 silver, 46 bronze) over 9 projects

X-Order Lab/Student Researcher, Data Scientist (2019 - now)

- Member of X-Order Lab (http://xorder.ai/)
- Recrewed as researcher by Doc. Yuyi Wang (from ETH Zürich)
- Researching on my own ideas in Deep Learning

Nigeria Buesness Partnership/College, Media, Special Project Chair (2017 - now)

- Provide business strategy for Nigerian Kawu Irrigation Farm.
- Monitored soil tests for NPK, pH, and salinity.
- Made solution proposal through local experiments with biochar.
  - Crop rotation (tomatoes, cassava, pepper, okra) reduce water and fertilizer consumption.
  - Implement biochar for raising pH of soil
- Wrote articles for local newspaper to raise educational awareness.
- Project profit supported 19 orphan's college education.

My Own Projects

Fixing Stanford Website's Volunaility (2018)

- Found SQL Injection volunability on Stanford University's SPCS website.
- Reported issue and proposed the patch.

Rocket Designing & Launching (2019)

- Successfully design & buid a rocket in simulation (KSP), capable of launch from Earth, staging fuel tanks, suicide burn on Moon, safely come back to Earth

Github "Redstone Torch" Softwere (2018 - now)

- Developed a platform based on Pytorch for Kaggle competition and general Conputer Vision challenges.
- Solve interdisplinary issues in biology, chemistry, geology, medicine, and manufacturing

Book "Tell Me What Rain Knows" (2017)

- A book of personal collection of prose and reflections on world around me.
- Discussed social issues: law enforcement, controversy in archeology, Chinese anime industry's development obstacle; Socio-Cultural Psychology in traditional "Pocket Money".
- Prose about family, friends, and parting.

Web Development & UI Design (2017 - now)

- Coded 3 personal and 3 business website (for KokiCraft server, Art club, and Robotics club) using pure html and industrial frameworks
- Develop responsive website design to display properly on any device (on laptop, iPad, mobile phone)
- Coded UI design "Brownie" - a minimalistic geek style.

Genetic Algorithm for Chemistry 14 Bottle Problem (2018)

- Using Genetic Algorithm to interpret results of 210 different experiments
- Solve the composition of the reactance in seconds (rather than days)

Chaos Theory Research (2019)

- Visualizing 3-Body Problem by Data Analysis & self-programmed physics engine.
- Generated and studied bifurcation map for Chaos System.
- Introduce Human-Computer Interaction (HCI), controlling each planets.
- Made music based on bifurcation map.

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Artificial Intelligence Research

Medical Diagnose: Histopathologic Cancer Detection
[CV | 3 months | 2019]

- Public 1st; Private 113rd; Top 10%
- Develop algorithms to identify metastatic cancer w/ pathology scanned images
- Single model achieved 98% AUC accuracy
- Breaking PCam benchmark (arXiv:1806.03962) by 2%

Extracting Cellular Location of Human Proteins Using Deep Learning [CV | 3 months | 2018]

- Proposed a modeling method for human proteins using Deep Learning
- Research Paper submitted to Google Science Fair
- "2018 Entrant New Idea Certificate of Recoginition"

Geology Analization: TGS Salt Identification Challenge
[CV | 3 months | 2018]

- Segmenting salt regions in geographical layers for petroleum detection

Chemistry Prediction: Predicting Molecular Properties
[ML | 2 months | 2019]

- Top 22% (579th / 2749)
- Develop algorithms to predict molecular coupling constant between atoms in organic chemistry using Deep Learning

AI Generated & Aided Arts Portfolio [CV | 2018 - now]

- Please visit my art portfolio: art.chenhanke.me

Medical Diagnose: SIIM-ACR Pneumothorax Segmentation
[CV | 3 months | 2019]

- Global Bronze Medal; Top 7%
- Develop algorithms to diagnose and segment pneumothorax from chest radiographic images.

Data Modeling: Instant Gratification
[ML | 2 months | 2019]

- Top 16% (Best Submission Top 6%, 109th, Bronze Medal Range)
- Modeling binary data on broken USB hardrives

[Weekly Projects in sub-fields of AI]

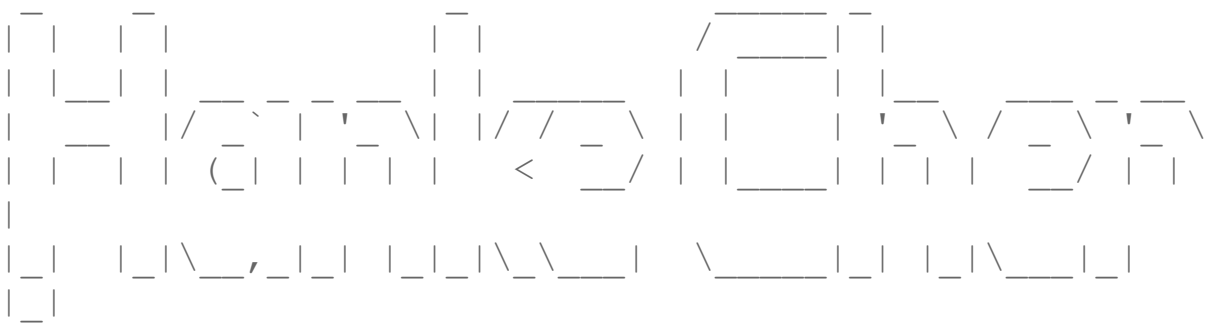
[AI | each around 1 week]

- NN: Predicting the Usage of Shared Bikes Using Neuron Networks
- CNN: Detecting Dogs Using Convolutional Neuron Networks
- GAN: Generating Faces Using Generative Adverserial Networks
- RNN: Generating TV Scripts Using Recurrent Neural Networks
- RNN: Chinese Text Segmentation Using Recurrent Neural Networks
- RL: Teaching Drones to Fly Using Reinforcement Learning
- RL: Reinforcement Learning for Robotics

Other Skills

Fluent Programing Language: Java, Python, SQL
AI Tools: Linux(Ubuntu), OpenCV, Pytorch, Keras, Tensorflow, Pandas, Numpy
Engeneering: Android, Arduino, Raspberry Pi, CAD
Website Language & Framework: html, css, Ruby, Javascript, Jekyll, Laravel

Language: Mandarin Chinese (native) | English (fluent)
Art: Watercolor, Sketch, Printmaking, Kinematic Chains
Design: Mechanical Design, Game Design, UI Design, Video & Animation Making



- How romantic it is to learn things with my AI models on