

## General Info

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Intended Major: Stats & Data Science; Physics; Art

## Online Presence

General: [www.chenhanke.me](http://www.chenhanke.me) Tech: [www.kokecacao.me](http://www.kokecacao.me)  
Portfolio: [art.chenhanke.me](http://art.chenhanke.me) Github: [github.com/kokecacao](https://github.com/kokecacao)  
Research: [www.researchgate.net/profile/Hanke\\_Chen2](https://www.researchgate.net/profile/Hanke_Chen2)

## Education

### -- Schools & Affiliation --

Sandy Spring Friends School, Sandy Spring, MD;

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

Affiliations: kaggle-cn, ods.ai, KentAI Lab, Kaggle-Jr.

### -- Extra Courses --

Udacity Machine Learning Nanodegree [graduated 2017]  
Udacity Deep Learning Nanodegree [graduated 2018]  
AI for Robotics at Stanford Pre-Collegiate [completed 2018]  
UIUC Master in CS (Data Mining Specialization) on Coursera

- Data Visualization [completed w/ GPA 98.7%]
- Text Retrieval and Search Engines [currently enrolled]

## Experience

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

- Use ML techniques to competitively build predictive models solving real-world problems
- Ranked 0.3% (w/ "Expert" title) among all other data scientists
- Won 2 gold, 5 silver, 46 bronze community medals in 10 projects

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

- Founded KokiCraft Network: 1st GTA Minecraft Server in China.
- Designed & Programmed 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 the time.
- Managed customer support team

### Robotics At Maryland (R@M) at UMD/Computer Vision

#### Engineer (2018 - now)

- Develop UMD club's underwater robotics vision algorithm using Deep Learning for AUVSI & ONR's Robosub competition.
- The only Deep Learning student scientist in the club
- Implemented & improved "GradCam" in a 2016 research paper to perform semi-supervised segmentation w/ partially labeled data

### 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.

### China Cup International Regatta (CCIR)/Competitor (2015)

- Competed in CCIR against 111 teams internationally
- Sailed in "30-mile Hong Kong to Shenzhen Passage Race" for an entire day against the wind and rain on the "Archiscope" boat.

## My Own Projects

### Fixing Stanford Website's Vulnerability (2018)

- Found & Reported a SQL Injection vulnerability on Stanford University's SPCS website. Proposed a patch.

### Rocket Designing & Launching (2019)

- Successfully design & build 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" Software (2018 - now)

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

### Book "Tell Me What Rain Knows" (2017)

- A personal book collection of proeses and reflections
- Discussed social issues: law enforcement, controversy in archeology, Chinese anime industry's development obstacle; Socio-Cultural Psychology in traditional "Pocket Money"
- Wrote proeses 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 HTML and industrial frameworks
- Coded UI design "Brownie" - a minimalistic geek style
- Developing responsive website design to display properly on any device (on laptop, iPad, mobile phone)

### Genetic Algorithm for Chemistry 14 Bottle Problem (2018)

- Used Genetic Algorithm to interpret results of 210 experiments
- Program able to resolve the composition of the reactance in seconds (rather than days)

### Chaos Theory Research (2019)

- Data Analyzed & self-programmed physics engine able to visualize the 3-Body Problem
- Generated and studied bifurcation map for Chaos System
- Introduced Human-Computer Interaction (HCI) able to control each planets in the 3-Body Problem
- Created music track based on bifurcation map

### AI-Generated & Aided Arts Portfolio (2018)

- Please visit my art portfolio: [art.chenhanke.me](http://art.chenhanke.me)

## Artificial Intelligence Research & Honors

### Medical Diagnose: Histopathologic Cancer Detection

[CV | 3 months | 2019]

- Solo Public 1st; Private 113th; /1157 participants
- 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]

- Paper submitted @ Research Gate: <https://doi.org/10.13140/RG.2.2.16431.28326>
- Proposed a human proteins modeling method by Deep Learning
- Google Science Fair "2018 Entrant New Idea Certificate of Recognition"

### 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 hard drives

### 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

### Geology Analyzation: TGS Salt Identification Challenge

[CV | 3 months | 2018]

- Segmenting salt regions in geographical layers for petroleum detection

## Weekly Projects in sub-fields of AI

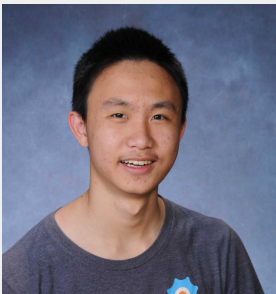
[AI | each around 1 week]

- NN: Predicting the Usage of Shared Bikes
- CNN: Detecting and Classifying Dogs
- GAN: Generating Faces
- RNN: Generating TV Scripts
- RNN: Chinese Text Segmentation
- RL: Teaching Drones to Fly
- RL: Reinforcement Learning for Robotics

## Kaggle Honors for Data Science

- Obtained "Discussion Expert" Title
- Global Ranked **299/110,600 (Top 0.3%)** among other datascientists (Oct. 2019)
- **2 Gold + 5 Silver + 43 Bronze** Discussion Medal
- **1 Bronze** Competition Medal; **3 Bronze** Kernal Medal;

## Other Skills



**Fluent Programing Language:** Java, Python, SQL

**AI Tools:** Linux(Ubuntu), OpenCV, Pytorch, Keras, Tensorflow, Pandas, Numpy

**Engineering:** Android, Arduino, Raspberry Pi, CAD

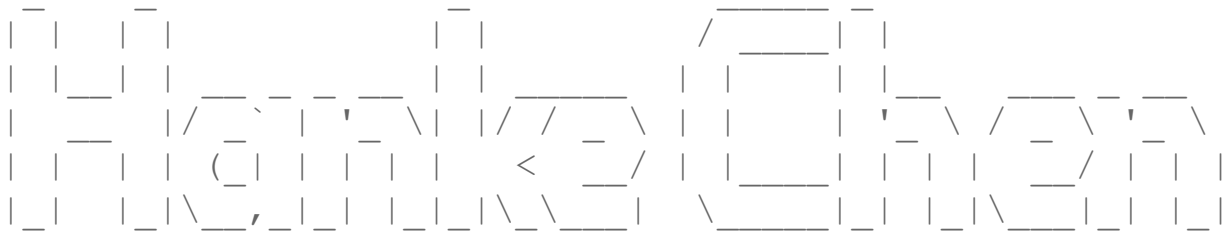
**Website Language & Framework:** html, css, Ruby, Javascript, Jekyll, Laravel

**Language:** Chinese (native) | English (fluent, TOEFL 111)

**Art:** Watercolor, Sketch, Printmaking, Kinematic Chains

**Design:** Mechanical Design, Game Design, UI Design, Video & Animation Making

**Sports:** CrossCountry, Skiing, Snowboarding, Sailing



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