CHRIS CHEN

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EDUCATION

University of Texas, Austin August 2019 - May 2021

Major: CSEM (Oden Institute/ICES)

Courses taked/taking: Machine Learning, Numerical Analysis, Parallel Computing, Theory of Probability, Stochastic Process. Audited: Topology, Abstract Algebra, Real analysis, Number theory.

GPA till now: **3.8/4.0**

Nanjing University (top 5 in China)

Bachelor of Science. Physics.

Courses taken: C programming, Calculus, Differential equation, Mechanics, Fluid Mechanics, Statistics, Electrodynamics, Quantum Mechanic, Optics, Sphere Math, Signal processing, Astronomy, Galaxy, Cosmology, Special Relativity, General Relativity.

GPA: 4.3/5.0 (top 7%)

MATH/SCIENCE AWARDS

Math Competition of Zhejiang University (top 5 in China), 3rd Award. [Calculus, Real Analysis, etc.]

National Olympic Math Competition (middle/high school), 1st Award. [Number theory, Plane Geometry, etc.]

National Physics/Chemical/Biology Champion(middle/high school), 1st/2ed Award. [Solve complex problems.]

WORK/INTERN/PROJECTS

INTEL **Software Engineer** 2015.07 - 2019.02

Virtual machine (Binary translation) on Android platform Intel phone.

- Partial responsible for updating new version: major version: >50 new features/>200,000 tests(>95% pass).
- Responsible for optimizing android SDK/NDK libraries(200+, ∼20 native libraries, increasing over time):
  a) Develop >30 features to support Android update of kernel/Native bridge/linker/building system/library.
  b) Speedup functions, save >90% time for each scenario: by developing tools to parse ARM/X86 libraries/ELF/ dwarf file, compare ARM/X86 functions/structures, using Shell/C/C++.
- Fix >100 bugs(200,000+ fails) Application crashes, scrutinise 100-2000 lines of bits and assembly instructions per debug: e.g, kernel structure change (add 1 meaningful bit), dead lock (wrong code order), stack mismatch/illegal address (function input/output type/signature change, new system call convention), wrong app hacking method, etc.
- Start up new devices: e.g: make a demo of Broxton device in 2 weeks: Build/flash android image, push virtual machine, read logs and fix bugs(e.g.,change android building codes) to make it work.

IBM **Software Developer Intern** 2015.01 - 2015.01

Wrote Web-page Unit tests, using Java/html/Java-script.

TAL Education **Math Competition Teacher** (part-time job) 2014.06 - 2014.12

Lectured Number theory/Logic, ∼120 elementary school students, 30% students got awards.

Machine Learning Projects: 2020.01 - 2020.05

- Compress handwritten digits data to 10% the original size by PCA. By pytorch CNN with accuracy 0.95+.
- Separate mixed sound tracks, by ICA, with match 0.9+ when mix 2 tracks, 0.7+ when mix 5 tracks.
- Train an agent to walk towards end, avoid obstacles, collect litters, <0.03 possibility stepping on obstacles, by RL.

Personal Project: Android App - 360° VR video player 2018.03 - 2018.03

Develop a demo(no sound) for phones without Gyro (No VR Apps in market support this). Use inclination sensor and compass to get head inclination and direction, project each frame to a sphere. Use google VR board to watch.

Personal Project: 3D animation: 2014.01 - 2014.06

Implement several realistic scenes by software MAYA2014: model/cover material/add lights/skeleton/animation/render.

Sample Link: `https://drive.google.com/open?id=1Fcb75s0-0E8pCKNT1dcl7_v_zpAwVWDv`

Shanghai Astronomical Observatory, Big Data Process

Showed that the spins (angular moment) of dark matter halos are positively related. Use 2^{30} particles fluid gravity simulation, on High Performance Servers.

SKILLS

Machine Learning/Android/Linux/Virtual machine/Runtime/Compiler/Assembly Code/linker/ELF/dwarf

Language C(expert)/Java/Python/HTML/C++

Hobbies Piano, Violin, Oil painting.