

Zeyang(Julia) Huang

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EDUCATION

Northwestern University | Evanston, Illinois, US

Sep 2020 - (expected) Dec 2021

M.S. in Computer Science | Cumulative GPA: 3.81/4.00

- **Selected Coursework:** Computer Graphics I II III, Advanced Computer Vision, Photonic Information Processing, Pattern Recognition, Multicore Programming, Graduate Algorithms, Software Prototyping

Centre College | Danville, Kentucky, US

Aug 2016 - May 2020

B.S. in Computer Science and Mathematics with minor in Music | Cumulative GPA: 3.62/4.00

- **Selected Coursework:** Algorithms, Database, Software Developing, Visualization, Machine Learning, AI

RELEVANT EXPERIENCE

HPC Research Consultant *Northwestern University Research Computing Services*

Jan 2021 - present

- Processed and analyzed with high-performance computing utilization metrics data in **Python**.
- Troubleshoot, debugged, and gave user support with any cluster-related scripts, code, and scientific software.

Research Assistant *BIT Digital Performance and Simulation Technology Lab*

Jul 2019 - Aug 2019

- Advanced a dance action classification project aimed at evaluating theatre performances numerically.
- Implemented an **ML pipeline** in OpenCV for 10+ gigabytes of video and image datasets.
- Performed texture analysis and optimized ResNet architecture **PyTorch** leading to a 2.1% enhancement.

Research Assistant *Centre College Mathematics Department*

Jul 2018 - Jul 2019

- Developed a novel ML probabilistic **recommender system** model in C++ predicting user ratings.
- Processed and embedded 200M+ user scale data in parallel with **Python** and clustering algorithms.
- Designed and implemented few-shot learning and optimized the online Co-Occurance Data Embedding algorithm leading to a 15% improvement in convergence rate and a 4% accuracy increase.
- Gave a presentation of the model with novelties in topology optimization and submitted a paper.

Research Assistant *Centre College Behavioral Neuroscience Department*

Sep 2018 - Jan 2019

- Developed fractal dimension algorithms including box-counting and entropy to approximate complexity levels of image sets and correlate with human aesthetic sensations with **Python**, OpenCV, and R.
- Optimized the algorithm in C++ with CUDA and OpenMP to raise the running performance by 20%.

SELECTED PROJECTS

Interactive 3D World CG Simulation (JavaScript, WebGL, GLSL)

Sep 2020 - Feb 2021

- Created explorable and interactive 3D world web pages for visualizing physics-based geometric scenes.
- Implemented numerical solvers and rendering pipelines for real-time shading and kinematic changes.
- Developed user controls for adjusting camera, lighting, numerical solvers, and particle system motion factors.

Scandidate Management App (JavaScript, React Native, Firebase, Jest)

Sep 2020 - Dec 2020

- Designed and built a cross-platform mobile app that enables searching, filtering, and managing candidates.
- Created filtering and folder pages that filter candidates based on criterion fetched from descriptions, refined the UI, and developed ranking-based recommendation algorithms for searching derived from profiles.

Sheet Music and Chord Generator (Python, PyTorch, Sklearn, OpenCV)

Mar - Apr 2019

- Constructed a midi music creation system generating scores and chords based on GANs and LSTM.
- Conducted information retrieval in Python including format conversion, modulation, and chord extraction.

Inventory Web Application (JavaScript, SQL, PHP, React, Git, GCP)

Sep - Dec 2018

- Communicated with our client *TubeMaster* in Louisville, Kentucky for the need of creating a full-stack internal management workstation that catalogs catalysts, equipment, reactors, histories, projects, etc.
- Designed and implemented from scratch a UI flow, relational databases, and the three-tier architecture

RELEVANT SKILLS

- Python, JavaScript, Go, Java, C/C++, PHP, SQL, MATLAB, R, Linux
- WebGL, OpenGL, React Native, D3.js, OpenCV, PyTorch, Tensorflow, Firebase, Git, GCP, Docker
- Autodesk 3ds Max, ZBrush, Cinema 4D, Blender | Cubase, Sibelius, Adobe Audition, Adobe After Effects