RUIDA **ZENG**

Nashville, TN | (405) 339-5125 | ruida.zeng@vanderbilt.edu | https://www.ruidazeng.com |

EDUCATION

Vanderbilt University   **Nashville, TN**

B.S. Computer Science & Mathematics, Minor - Engineering Management   December 2021
- GPA: **3.67/4.00**, Primary Major Computer Science GPA: **3.93/4.00**
- Relevant Courses:
  - Computer Science: Program Design & Data Structures, Digital Logic, Computers & Ethics, Circuits I, Intermediate Software Design, Algorithms, Theory of Automata & Formal Languages, Programming Languages, Compiler Constructions, Operating Systems, Computer Networks, Cyber Security, Binary Exploitation & Reverse Engineering, Cloud Computing, Machine Learning, Artificial Intelligence
  - Mathematics: Multivariable Calculus, Linear Algebra, Probability and Mathematical Statistics, Ordinary Differential Equations, Error-Correcting Codes & Cryptography, Discrete Mathematics, Graph Theory
  - Engineering Management: Technology Strategy, Engineering Economy, Applied Behavioral Science, Systems Engineering, Program & Project Management

Missouri Academy of Science, Mathematics, and Computing   **Maryville, MO**

A.S. Science & Mathematics, High School Diploma   May 2018
- GPA: **4.00/4.00**
- Relevant Courses:
  - Computer Science: Computer Programming I & II, Data Structures, Computer Organization, Database Systems

AWARDS & CERTIFICATES

- Dean's List – 2018 Fall, 2019 Fall, 2020 Fall, 2021 Spring, 2021 Fall
- PMI Certificated Associate in Project Management (CAPM) – May 2021
- 1st Place @ Vanderbilt University Programming Contest & ICPC North America Qualifier – February 2021
- Runner-Up Masterpiece (2nd place) @ VandyHacks VI – November 2019
- Certificate of Achievement @ 2019 Summer Undergraduate Research Experience Program – September 2019
- Missouri Scholars 100 – March 2018
- Champion @ Missouri Beta Convention Quiz Bowl – March 2018

WORK EXPERIENCES

Vanderbilt University School of Engineering   **Nashville, TN**

Undergraduate Teaching Assistant   January 2019 – May 2021
- Hold 4-8 weekly office hours, help students with homework and projects.
- Grade programming assignments, quizzes, and exams in a timely manner.
- Spring 2019 & Fall 2019 - CS 3270 Programming Languages
- Spring 2020 & Fall 2020 - CS 3281 Operating Systems
- Spring 2021 - CS 2201 Data Structures
- Supervisor: Dr. Julie Johnson, Director of Undergraduate Studies, Department of Computer Science

Institute for Software Integrated Systems   **Nashville, TN**

Summer Intern   April 2020 - August 2020
- Designed and developed cyber-physical system communication network simulation with variable fidelity level using OMNeT++
- Fully implemented both the transport layer (TCP & UDP) and layer 3 of the network layer using C++ and INET framework
- Maintained consistency of network data during node transitions that happen at run-time using switching time delay and retransmission
- Generated use-cases (i.e. node failures, cyber-attacks) to demonstrate feasibility and applicability
- Supervisor: Dr. Janos Sztipanovits, Director, Institute of Software Integrated Systems

Vanderbilt University School of Engineering   **Nashville, TN**

Summer Research Fellow   April 2019 - August 2019
- Worked on the development of a customized video pipeline that will help understand the state of a patient during emergency care
- Utilized Amazon EC2 alongside S3 buckets to load and run a Tensorflow Keras LSTM neural network on chunks of image data
- Assisted graduate student with locomotion experiments conducted on smartphone-based virtual reality systems
- Performed cluster analysis on subject data in immersive virtual environments using Pythonic scikit-learn libraries
- Supervisor: Dr. Bobby Bodenheimer, Professor, Department of Computer Science

RESEARCH

Vanderbilt University School of Engineering **Nashville, TN**

Research Assistant   January 2020 - Present
- Worked on an autonomous visualization system within the context of non-traditional pathways (i.e. mountain bike trails)
- Converted raw resources gathered using the Inter 435i camera (i.e. RGB, depth mappings) to usable formats (i.e. PNG, CSV matrices)
- Analyzed several machine learning models from past research to mitigate the discrepancy between predicted and real gathered data
- Supervisor: Dr. Jules White, Associate Professor, Department of Computer Science

Northwest Missouri State University **Maryville, MO**

Research Assistant   April 2017 – May 2018
- Studied EMOTIV's EEG-based BCI device and its common applications in virtual and real-life using basic programming constructs
- Supervisor: Dr. Ajay Bandi, Associate Professor, School of Computer Science and Information Systems

PUBLICATIONS & POSTER PRESENTATIONS

R. Zeng, A. Bandi and A. Fellah, "Designing a Brain Computer Interface Using EMOTIV Headset and Programming Languages," *2018 Second International Conference on Computing Methodologies and Communication (ICCMC)*, 2018, pp. 908-913, doi: 10.1109/ICCMC.2018.8487684.

Cluster Analysis on Subject Data in Immersive Virtual Environments. Vanderbilt University, Nashville, Tennessee, September 2019.

SELECTED PROJECTS

Stratus – A fully-implemented cloud-based deep learning project with end-to-end full-stack handwritten digit recognition. Built using Chameleon Cloud, Kafka Broker and Zookeeper, Docker and Kubernetes, nginx, and Spark ML. [GitHub] [paper]

DibuAR – An artistic therapeutic application using augmented reality (AR) targeted towards children experiencing autism that allows drawing and interacting with nature in 3D-space. Free drawing using Unity's line renderer; start/stop associated with touch using C#; Raycast Manager for plane detection. [Devpost]

Personal Website – Created using HTML, CSS, and JavaScript; hosted via GitHub; redirected to namesake domain using CNAME aliasing. [GitHub]

IoTScan – A simple project that utilizes the Python Shodan API to scan all IT infrastructure on the Vanderbilt network for vulnerability. [GitHub]

LEADERSHIP EXPERIENCES

VUcept **Nashville, TN**

Student VUceptor   May 2019 - February 2020
- Peer mentored a group of 18 first-year students through a 14-week extended orientation program called the Vanderbilt Visions
- Collaborated with a faculty partner to co-facilitated weekly discussions on difficult topics based on the required curriculum
- Participated in campaigns to provide open and welcoming spaces across campus for all students to feel valued and included

Beta Upsilon Chi Fraternity **Nashville, TN**

Chief of Operations   September 2019 - May 2020
- Right-hand man to the Pledge Captain with significant logistical responsibilities
- Managed the budgets and schedule pledge events, communicated with both the brothers and the pledges effectively and promptly
- Created and maintained 35 smart compartmentalized Google sheets to keep track of task completion, study hours, and brother meals

CAMPUS INVOLVEMENTS

Alternative Spring Break
- Prepared by learning the history, relevance, and important context of the site's theme through active engagement
- Participated in education, voluntary services with non-profits, and reflection in Portland, Oregon during the week of spring break
- Assisted with maintenance and education at school gardens and helped revitalize green spaces that were previously urban landscapes

Vanderbilt Student Volunteers for Science
- Provided inquiry-based, hands-on science lessons to elementary and middle school students in Metro Nashville Public Schools

Inside 'Dores Blogger
- Wrote blogs about student life for the Vanderbilt Admission website and served as a friendly resource for all prospective students

PERSONAL DEVELOPMENTS

Vanderbilt Free and Open Source Society, VandyApps, Vanderbilt Math Club, Nashville Navigators

SKILL & INTERESTS

Skills: Linux, Bash, Unix Shell, Microsoft Office, English (bilingual), Mandarin (bilingual), Cantonese (proficient), French (intermediate)
Interests: Dallas Cowboys, Sherlock Holmes, Taylor Swift, Jeopardy!, Narcos, piano, cinematography, Walt Disney World, Counter-Strike