Ruiyang Zhou

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EDUCATION

University of Virginia *May 2025*
3rd Year, Computer Science(B.A.) Cumulative GPA: 3.84

SKILLS

Programming language: C++, Python, Java, HTML, x86 Assembly
Technologies/Environment: Xilinx Vitis, JUCE, Django, Latex, OpenCL, Vivado, SolidWorks, Ardruino, Ableton, Pure data
Languages: Proficient level English, Proficient level Chinese, N5 level Japanese

RELEVANT COURSES

- **Completed Courses:** Software Development Method, Discrete Math, Program and Data Representation, Data Structure and Algorithm 2, Computer Architecture, Advanced Software Development, Discrete Math and Theory 2, Operating System.
- **Ongoing Courses:** Digital Signal Processing, Hardware Security, Intro to Cybersecurity.
- **Online Courses:** (Coursera) Introduction to TensorFlow for Artificial Intelligence, Machine Learning, and Deep Learning.

EXPERIENCE

Research Scholar at SRC Research Scholars Program
Part-time student researcher at University of Virginia *December 2022- present*

- Aiming to use AMD Alveo U280 FPGA and implement Xilinx's Vitis library with C++ to scale up the virtual machine based regular expression matching on automata processing.
- Modified the virtual machine in Vitis Library's L2 level to supplement concurrent multi-kernel running which may process single input and multiple pattern matching on FPGA simultaneously.
- Experimented on benchmark tools like ANMLZOO and AUTOMATAZOO to evaluate the speed of automata processing. Modified regular expression format in benchmarks for use in regex virtual machine.

Tennis Player Search and Sort App for Georgia Tech Tennis Team
Contract project with Georgia Institute of Technology Athletic Association *March 2021-August 2021*

- Built a tool that can filter tennis athletes based on customized criteria (e.g., age range and nationality) and rank filtered athletes based on scores/rankings from different sources (e.g., UTR, ATP, ITF and USTA) and customized weight.
- Implemented data scraping and processing from different websites. Use beautifulsoup in python to pull data out of website. Use Selenium and webdriver to actualize automation and avoid robot detection.
- Built the standalone python executables and sorted out the data in CSV format. Cooperated with other teammates to build the data base in JSON format and further filtering, ranking and weighing with LINQ.

PROJECTS

Local Lost and Found web application
Software developer, DevOps manager *August 2023 - December 2023*

- Used Django framework and Heroku cloud platform to build Lost and Found web application helping students in the University.

- Integrated Google Oauth2 to allow users login with google emails. Applied Google Map API for real time map checking and pin markers on the map. Integrated with Google Cloud Storage for image data storing and sharing.
- Used git to manage repository for team. Managed Postgres database on heroku and maintain Continuous Integration with YML file.

VST Plugin Suite Design

Designer, Programmer *August 2023 - December 2023*

- Used C++ and JUCE framework to design fully usable vst/AU plugins with GUI on various DAW like Ableton, Reaper, Logic pro and Fl studio.
- Designed the suite including a volume-balance plugin, an equalizer plugin, a delay plugin, a chorus plugin, a compressor plugin, and a creative multi-band distortion plugin.
- Implemented the RMS detector for compressor; Implemented the Linkwitz-Riley filters for multi-band separation; Implemented various distortion algorithms like soft clipping and hard clipping.

EXTRACURRICULAR ACTIVITIES

UVA Competitive Badminton Team

- Active participant in the University of Virginia's competitive badminton team, engaging in regular practice and training sessions to enhance team performance and personal skill level.

Individual Music Producer

- Use Ableton for music production and mixing. Specialize in sound design. Design simple synthesizers using Pure Data.