Yongkang Cheng

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EDUCATION

University of Toronto Sept 2023 - May 2028 (expected)
Bachelor of Applied Science in Computer Engineering + PEY Co-op
Related Courses: Applied Fundamentals of Deep Learning (90%), Programming Fundamentals (C & C++) (90%)

TECHNICAL SKILLS

(Most proficient comes first)

- **Programming:** Python, C/C++, JavaScript/TypeScript, Verilog, Java
- **Frameworks:** PyTorch, React, FastAPI
- **Tools:** Linux, Nginx, Docker, Git, SSH
- **Hardware:** Arduino, Raspberry Pi, FPGA
- **Data & Visualization:** NumPy, Pandas, Matplotlib

PROJECTS

Developer, Diary with ChatGPT Comment Project, Personal Project Sep 2023 - Present

- Developed a diary web application that integrates with ChatGPT to provide AI-generated feedback on journal entries, enhancing user reflections and insights.
- Built using a full-stack development approach with Python, JavaScript, and HTML/CSS, utilizing OpenAI's API for real-time comment generation.
- Implemented key features including user authentication, diary entry management, and secure API calls to generate personalized feedback, gaining experience in full-stack development and cloud deployment.

Developer, Verilog Pac-Man Game, UofT Nov 2024 - Nov 2024

- Learned Verilog, ModelSim, and testbench development within three weeks, writing over 1,620 lines of Verilog code and delivering the Pac-Man-inspired FPGA game on time.
- Led the development and optimization of the graphical rendering module, achieving high-quality visuals on VGA output while employing parameterized design to replace hardcoding with variable-driven configurations, enhancing module flexibility and resource efficiency.
- Debugged the project using ModelSim, resolving complex issues including signal synchronization and FSM logic errors, significantly improving the game's stability and functionality.
- Utilized Python and OpenCV tools to convert UI designs created by teammates into FPGA-compatible '.mif' files, enabling seamless integration and rendering on FPGA on-chip memory.

Architect, Handwritten Text Recognition Project, UofT June 2024 - Aug 2024

- Set up and maintained a GPU remote server and GitHub repository; hosted 12 team meetings, maintained daily logs, and ensured smooth team collaboration for a 4-member team.
- Designed and trained a Convolutional Recurrent Neural Network (CRNN) in PyTorch, applying transfer learning, data augmentation, and beam search techniques, achieving 87% word-level and 95% character-level accuracy.
- Developed a connected-pixels algorithm for word positioning, leveraging NumPy, recursion, and non-maximum-suppression to process 1024x1024 images in under 4 seconds.
- Built a Tkinter-based GUI, delivering an end-to-end solution that enables users to upload images and transcribe 100 words within 10 seconds, significantly improving efficiency.

Project Manager, Engineering Strategy and Practice Project, U of T Jan 2024 - April 2024

- Managed a proposal project with 6 students to revamp the wellness room in Chestnut Residence. Conducted 3 client meetings and received endorsement in the final presentation, earning 82/100 in the final Conceptual Design Specification.
- Led the team by delegating tasks using Gantt Charts, organizing 3 weekly meetings, and tracking progress on 121 tasks, ensuring smooth collaboration and timely delivery.
- Self-taught Blender and used Rhino to reconstruct 3D models of the wellness room based on site-measured data. Rendered over 200 images and a video to visually present the design, improving client understanding.
- Researched ambient light and its effects on personal well-being. Calculated light intensity, temperature, and the correlated M-EDI value to demonstrate the feasibility of the proposed design.

EXTRACURRICULAR & VOLUNTEER ACTIVITIES

Frontend Manager, The Voluntrack Project, Voluntrack.org May 2024 - Present

- Led frontend development for a Non-Profit Organization, overseeing the creation of a mobile app and website using React Native and React.js, resulting in a user-friendly platform for volunteers and organizers.
- Conducted biweekly team meetings to assign tasks, provide progress updates, and ensure alignment on project goals, which improved team communication and workflow efficiency.
- Created new pages for user profile settings, arranged the router settings and page layout, resulted in a clearer page.
- Regularly updated the website to improve functionality and user experience, implementing key features, and get updated in the App Store & Play Store.

Self-Learning Linux & Build Personal Website Oct 2024 - Present

- Replaced the PC with a Raspberry Pi for daily tasks like coding and writing; self-taught Git, SSH, Vim, firewalls, and configured DDNS for seamless remote access.
- Developed and hosted a personal website using React.js, with TLS encryption via Certbot, and deployed it on Raspberry Pi using Nginx.
- Built a ”self-clone” ChatBot for the website using FastAPI and OpenAI API, integrated with React.js and NoSQL database, enabling real-time Q&A functionality. Accessible at https://chengyongkang.me/chat.

AWARDS & ACCOMPLISHMENTS

ECE Awards & Dean’s List Scholar, University of Toronto Sep 2024

- Top 30 students among the first year Electrical & Computer Engineering students in University of Toronto.
- High cGPA (3.91/4.0) in the first year, stood out from the engineering students.

American Computer Science League (ACSL) - Bronze Prize Jan 2021

- Dedicated 60 hours to training, focusing on data structures, graph theory, and assembly language.
- Secured Individual Top Scores (Top 20%) in the 4th round and Bronze (Top 50%) in the fifth (final) round.