

ANDREA TAGUINOD

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EDUCATION

Carleton University

Ottawa, Ontario

Bachelor of Engineering, Communication Engineering — 4th Year

Expected Graduation: April 2027

Relevant Courses: Object Oriented Programming, Imperative Programming, Computer Organization & Architecture, Communication Theory (I, II), Signal & Systems, Computer Networks, Electronics (I, II, III), Communication Software

SKILLS

Languages: C, Python, Java, JavaScript, MATLAB, Racket, HTML/CSS, SQL

Technologies: Linux, Docker, REST APIs, gRPC, Node.js, MATLAB Simulink

Development Tools: Git, VS Code, IntelliJ, Bash, Wireshark, MATLAB R202b, LTspice, Ansys

PROJECTS

Video Streaming System: Frame-Synced GIF Playback | Python, Socket Programming, RTSP, RTP

- Built a video streaming system using **Real-Time Streaming Protocol (RTSP)** for session control and **Real-Time Transport Protocol (RTP)** for packetized frame delivery, enabling frame-synced GIF playback.
- Implemented client-side RTSP commands, reducing manual setup time from 3.0s up to 0.8s.
- Designed loss and reordering logic to handle 5–10% packet drop scenarios, reducing playback glitches by over 45%.

Acoustic Digital Messaging | MATLAB, Signal Processing, BPSK, Audio Transmission

- Built an acoustic communication system in MATLAB to transmit digital messages using **Binary Phase Shift Keying (BPSK)**-modulated sound waves, enabling reliable data transfer over standard audio channels.
- Implemented modulator and demodulator for BPSK signals to enable end-to-end digital communication.
- Converted text to binary, applied BPSK modulation with RRC filtering, and generated waveforms.
- Recovered symbols with over 95% bit accuracy in noisy conditions using synchronization and matched filtering.

Network Packet Sniffer | C, Libpcap, Packet Filtering

- Developed a packet sniffer in C using sockets to capture and analyze live TCP/UDP packets at the Ethernet layer.
- Implemented advanced packet filtering mechanisms based on IP address, port number, and protocol type, enabling targeted analysis of specific network flows and reducing noise from irrelevant traffic.
- Achieved real-time packet capture with minimal performance overhead by leveraging non-blocking I/O.
- Provided insights into network traffic patterns, helping identify potential security threats and performance bottlenecks.

OTHER WORK EXPERIENCE

Customer Service Manager (formerly Cashier)

Sep 2020 – Present

Walmart Canada

Ottawa, ON / In-Person

- Promoted from Cashier to Customer Service Manager, leading front-end operations and a team of cashiers.
- Oversaw daily customer service tasks, resolved escalated concerns, improving improved satisfaction metrics.
- Trained and mentored new hires on point-of-sale (POS) systems, transaction processing, and troubleshooting.

VOLUNTEER EXPERIENCE

CUSA Women's Centre

2022 - Present

Carleton University

Ottawa, ON / In-Person

- Supported initiatives focused on gender equity, student wellbeing, and community outreach on campus.
- Helped organize workshops and events that addressed topics like consent, empowerment, and mental health.

Volunteer Caretaker

2023 - Present

Perley Health

Ottawa, ON / In-Person

- Provided companionship and support to residents in a long-term care facility.
- Assisted with recreational activities, fostering social interaction and engagement among residents.

Member, IEEE (Institute of Electrical and Electronics Engineers)

2025 – Present

Ottawa Section

Ottawa, ON / In-Person

- Joined the world's largest technical professional organization to stay current with advancements in electrical and computer engineering.
- Engaged with IEEE student branch activities and accessed professional development resources and publications.