

KRISZTIAN KURUCZ

MECHATRONICS ENGINEERING GRADUATE

CONTACT

PERMANENT 6 Weekes Avenue
Richmond Hill, ON
Canada

TEMPORARY 202 Lester Street #903
Waterloo, ON
Canada

PHONE +1 (416) 877 8264

EMAIL ✉ hire@krisztiankurucz.ca

SOCIAL 🌐 www.krisztiankurucz.ca
📺 in/krisztiankurucz
🎧 jazzkr

LANGUAGES

English
Hungarian

SOFTWARE

Altium
AutoCAD
Cadence
EAGLE
Linux
LTSpice
Microsoft Office
PADS
Altera Quartus
ROS
SOLIDWORKS
Xilinx Vivado

HARDWARE

Arduino
ARM Cortex
BeagleBone
Xilinx & Altera FPGAs
ESP8266
Onion Omega2
Particle Photon
PIC
Raspberry Pi
Teensy

WORK EXPERIENCE

ELECTRICAL ENGINEERING INTERN

(May 2017 -
August 2017)

Square - TORONTO, ON

- Led the complete electrical characterization of the analog front-end of an in-house ASIC for secure payment processing
- Designed and implemented a measurement automation system to complete characterization tasks, speeding up the process by 300% compared to manual characterization
- Won first place during the intern hack week, creating a low-cost, Square POS-integrated restaurant pager system.
- Conducted experiments using various SMD inductors to emulate magnetic credit card swipes, culminating in the design and manufacture of advanced internal test fixtures

HARDWARE ENGINEERING INTERN

(September 2016 -
December 2016)

Arista Networks - SANTA CLARA, CA

- Led development of the Integrated Power Shelf (IPS) project heavily contributing to the hardware and software design of the 1RU BeagleBone-controlled power system
- Expanded and revised the software platform for the IPS, adding SNMP functionality, a Flask-based web interface, and software telemetry capabilities (through I2C)
- Conducted a comprehensive hardware evaluation of a new digital power management IC, testing functionality, ensuring compatibility with new designs, and producing a final report

HARDWARE DESIGNER

(January 2016 -
April 2016)

Imagine Communications - TORONTO, ON

- Assisted with VHDL design and simulation for Xilinx-based FPGAs centered around real-time audio and video processing
- Revised and updated electrical schematics with Cadence EDA tools to replace an IC on an existing production board, then tested and verified the successful redesign
- Analyzed and debugged a RMA defective board, successfully determining the root cause through circuit troubleshooting
- Conducted SFP+ compliance testing to ensure signal integrity on pre-production boards and authored the formal compliance reports to be delivered to the customer

JUNIOR ENGINEERING INTERN

(May 2015 -
August 2015)

Kepstrum - VAUGHAN, ON

- Led development of a major Windows application in C# meant to facilitate internal engineering processes and completed a working prototype in less than two months
- Contributed to software and PLC test stand HMI development on-site at Kepstrum's technical facilities in Austria
- Initiated changes to existing business practices through the introduction of a formal revision control system as well as a centralized knowledge-base for the company

EDUCATION

BACHELOR OF APPLIED SCIENCE

(Expected
May 2018)

University of Waterloo - Mechatronics Engineering

- Achieved a competitive rank of 26th out of 106 students during the 3B term (last ranked term) and maintained a cumulative average of 85% as of Fall 2017
- **Relevant Courses:** Digital Logic, Computer Structures and Real-Time Systems, Sensors and Instrumentation, Microprocessor Systems and Interfacing, Power Electronics and Motor Drives, Digital Control Systems, Autonomous Mobile Robotics, Analog Electronics, and Embedded Computer Systems

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MECHATRONICS ENGINEERING GRADUATE

PROGRAMMING

Java, C#, C++
Python 2.7 & 3
HTML & CSS
JavaScript, Node.js
PHP & SQL
VHDL & Verilog
PLC Programming
Embedded C
MATLAB
Assembly

INTERESTS

PROFESSIONAL

App Creation
Data Analysis
Electronic Design
Product Design
Programming
Prototyping
Web Design
Woodworking

PERSONAL

Biking
Cooking
Photography
Reading
Running
Snowboarding
Travel

REFERENCES

Available upon request.

EXTRACURRICULAR ACTIVITIES

EMBEDDED IMPLEMENTATION LEAD

(September 2017 - April 2018)

WATonomous - UWaterloo Student Design Team

- › Undergraduate-led student design team competing in the SAE Autodrive Challenge, with the objective of retrofitting a stock Chevrolet Bolt EV with sensors and software to enable it to drive autonomously
- › Led the Embedded Implementation and Controls team for the fall and winter terms, managing a team of 8 - 12 students.
- › This team is responsible for controlling the Bolt through CAN interfacing, designing and implementing the power systems within the car, and supporting all other interfaces, sensors, and computing resources from an electrical capacity
- › Travelled to Chandler, Arizona in October 2017, and Milford, Michigan in September 2017 to attend different training sessions offered by Intel and GM respectively, as one of the core members of the team

UPPER YEAR ENGINEERING LEADER

(September 2014, 2015, 2016, 2017)

Engineering Orientation

- › Led, instructed, and supervised students, as well as participated in the setup and teardown of most events in an administrative role for over 7000 engineering first years (2016 and 2017)
- › Took responsibility for an entire group of over 80 students, with the help of only two other orientation leaders (2015)
- › Organized and supervised incoming first-year students, ensuring they were safe, actively engaged, and having fun during orientation week activities

PROJECTS

ACCURIBE

(September 2017 - Present)

Mechatronics Capstone Design Project

- › Collaborated with a cross-functional team to create a home kitchen device to measure and regulate fruit ripeness with the overall goal of reducing consumer-level food waste
- › Led the electrical design of the project to facilitate the processing and sensing functionality using an IoT Linux module integrated with an ATMEGA2560 coprocessor and other commercial ICs, designing, fabricating, and debugging three custom PCBs
- › More information and updates at: www.accuribe.ca

AIRFUSE

(May 2017)

Intel Hacks 2017 Project Submission

- › Submitted a fully integrated hardware / software project, completing the schematic design, hardware prototyping, and 3D printed case design in less than one month
- › Created an Android application to leverage a backend API to control the purpose-built hardware through Wi-Fi
- › More information at: www.devpost.com/software/airfuse

ADDRESSABLE RGB LED STRING

(September 2016)

Personal Project

- › Created an integrated consumer IoT product using a custom PCB, 3D printed case, and software (embedded C) to facilitate easy control and configuration through WiFi using an onboard ESP8266 module

OTHER HARDWARE & SOFTWARE PROJECTS

(Ongoing)

- › **HW:** Aux-to-Bluetooth module, linear power supplies, 3D printer, and other small circuits
- › **SW:** Personal website, various small Android apps, Linux server administration, and www.yropenmic.com