Julia Chernushevich

Mechatronics Engineer

Mechatronics engineer passionate about delivering high-quality, relevant products that strengthen societies around the globe.

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WORK EXPERIENCE

Embedded Software Engineer
Lumafield

09/2022 - Present — *Cambridge, MA*

CT scanners for engineering

- Designing and building a prototype automated scanner for manufacturing applications. This includes architecting state machines, writing firmware (C), designing the Serial communication protocol, and implementing the Python backend and React frontend.
- Led a cross-team project to reduce our minimum scan time 40x (from 20 minutes to 15 seconds), opening the door to R&D and production applications for our CT scanners.
- Led a project to expand the volume of objects that can be scanned by up to 80%. This module is sold for $10K/scanner/year.
- Primarily working in an async Python backend on a Linux machine. Occasional minor feature development and bug-fixes on the frontend (React) and in firmware (C).

Product Lead
deeplearning.ai

02/2021 - 08/2022 — *Palo Alto, CA*

World leader in AI education

- Led two global teams of five curriculum developers, machine learning engineers, and QA staff in building educational courses that inspire, educate, and provide hands-on experience to hundreds of thousands of learners worldwide.
- Produced two specializations under the guidance of Andrew Ng: AI for Good & Mathematics for Machine Learning.

Embedded Software Developer
Alert Labs

02/2019 - 01/2021 — *Kitchener, ON*

- Responsible for the development of six smart building products, as part of a team of three embedded software developers.
- Led the product development for an automatic water shut-off valve for domestic and commercial use. This included working with a third-party hardware supplier, creating custom LoRa communication protocols to communicate between sensors, and writing firmware to integrate the product (the company's first actuator) into the existing ecosystem of monitoring sensors.
- Designed user work flows for manual & automatic shut-off, facilitated seamless integration between firmware and platform, contributed to graphic design and marketing, and coordinated the beta testing and roll-out of the product.
- Managed a fleet of over 10,000 sensors deployed across North America, including new firmware deployments, fleet health checks, and data analysis.
- Represented the Hardware team in company-wide usability discussions.

SKILLS

Python | C/C++ | C# | SQL | MongoDB | Git | GitLab | AWS | Product Design | UX | User Research | AI / ML | Pedagogy | Robotics | React

PERSONAL PROJECTS

BattleBots (2015 - Present)
- Design and construct 250lb combat robots for the television show BattleBots.

Maker Faires (2019 - Present)
- Involved in the organization of Maker Faires and combat robotics events across North America.

Gardening & Hydroponics
- Passionate about food security, community gardens, and how to bring healthy, locally grown foods to cities.

VOLUNTEER EXPERIENCE

Secretary, Board of Directors
Kwartzlab

2020 - 2021

Kitchener, ON

Community makerspace that serves 150 members.

- Oversaw the ongoing operations, safety, and financial health of the lab.
- Implemented virtual training for all of our equipment and processes, as to minimize in-person interactions during COVID-19.
- Assessed the feasibility of offering different membership tiers and delivering financial assistance in an equitable way.
- General secretary tasks - managed membership, internal communications, and outreach.

Head Robot Design Judge
FIRST

2011 - 2021

Waterloo, ON

FIRST engages students in STEM activities through a yearly robotics and innovative design challenge.

- Judge team presentations and trial runs of their robot, providing constructive feedback.
- Organizing all Robot Design Judges to collectively rank teams, submit feedback, and continue judging through call-backs.

WORK EXPERIENCE

Content Developer
Udacity

05/2017 - 02/2019 *Mountain View, CA*

- Worked with leading subject-matter experts to design the Robotics, Flying Car, and Cybersecurity Nanodegree Programs, which produce job-ready graduates with technical skills needed in today's markets.

Mechatronics Instructor
University of Waterloo

08/2016 - 01/2018 *Waterloo, ON*

- Designed innovative projects, such as autonomous underwater robots, to introduce hands-on content to the Mechanical and Mechatronics Engineering curricula.
- Delivered projects and labs for 300 undergraduate students. This involved administering lectures, office-hours, and evaluations. I had the help of four teaching assistants and seven co-op students whom I managed.
- Co-led a department makerspace, teaching students to use tools such as 3D printers, laser cutters, and CNC mills.
- Created courses for an online training program, allowing students to learn the basics of a technology. This cut down on the duration of in-person training required, increasing the lab's throughput.

Research and Development Engineer
Prairie Machine & Parts

10/2014 - 06/2016 *Saskatoon, SK*

- Designed and developed a data-logging and diagnostic tool for mining vehicles that records vehicle operating parameters and presents them along with live diagnostic data to the end-user via a web application. This product saves tens of thousands in yearly operating costs by removing the need for on-site mine visits.
- Researched & tested battery technologies to produce the safest, most reliable, and long-lasting battery packs for our mine vehicles. Tests included cold-weather performance and lifecycle analysis.
- Designed and implemented a battery testing process that characterized battery cells prior to their assembly in a pack. This allowed production to identify faulty cells, reducing vehicle faults experienced by customers, saving the company tens of thousands of dollars.

Program Co-Director
SHAD Saskatchewan

08/2015 - 09/2016 *Saskatoon, SK*

- Responsible for the organization of a prestigious one month-long live-in program for gifted high school students from across Canada.
- Managed the hiring and training of 12 program staff (faculty, teachers, recreation directors, and program assistants).
- Planned curriculum to accommodate a wide range of interests and be appropriate for students ages 15 – 18.
- Managed communication with parents, guest speakers, university employees, and students.

ACHIEVEMENTS

Instructional Skills Workshop, University of Waterloo (2019)

Completed the 24-hour workshop, which taught me a variety of instructional strategies and techniques, gave me the opportunity to practice them, and then had me reflect on my teaching. Topics covered included establishing learning objectives, participatory learning, and creating positive learning environments.

CPR HCP Certified

VOLUNTEER EXPERIENCE

Guider
Girl Scouts / Girl Guides

2015 - Present

Arlington, formerly Waterloo & Saskatoon

Girl Scouts/Guides provides girls age 5-17 with the opportunity to try new experiences, challenge themselves and build their confidence.

- Host troop meetings where girls work towards their badges. Activities range from simulated search and rescue missions to chemistry experiments.
- Organized camping trips, which included managing safety, food, and education.
- Taught Robotics to other units in the region, as a Resource Guider.

EDUCATION

Bachelor of Applied Science, Honours Systems Design Engineering, Co-op Program
University of Waterloo

2008 - 2013
Waterloo, Canada

LANGUAGES

English
Native or Bilingual Proficiency

Russian
Native or Bilingual Proficiency

INTERESTS

Rock Climbing | Gardening | Reading | Ultimate Frisbee | Green Energy | Global Development | Board Games