

# Denis Lalaj

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## EDUCATION

### UNIVERSITY OF BRITISH COLUMBIA

#### BASc COMPUTER ENGINEERING

2019 - ongoing | Vancouver, BC

Faculty of Applied Science

Department of Electrical and Computer Engineering

## LINKS

Facebook:// Denis Lalaj

Github:// dlalaj

LinkedIn:// Denis Lalaj

## COURSEWORK

### PROGRAMMING

APSC 160: Intro to Programming

CPEN 221: Software Construction

CPEN 211: Intro to Microcomputers

### MATHEMATICS

MATH 100: Differential Calculus

MATH 101: Integral Calculus

MATH 253: Multivariate Calculus

MATH 256: Differential Equations

MATH 152: Linear Algebra

MATH 220: Discrete Mathematics

### PHYSICS

PHYS 157: Thermodynamics

PHYS 158 Electromagnetism

PHYS 170: Mechanics and Dynamics

PHYS 159: Physics Laboratory

### WRITING

WRDS 150: Academic English

CPEN 281: Technical Communication

### CURRENT COURSES

CPSC 221: Algorithms and Data Structures

CPEN 291: Design Studio: Machine Learning

CPSC 261: Basics of Computer Systems

## SKILLS

### PROGRAMMING

- Java (Intermediate)
- Verilog (Intermediate)
- C (Intermediate)
- Python (Novice)
- ARM Assembly (Novice)
- MATLAB (Novice)
- L<sup>A</sup>T<sub>E</sub>X (Novice)

## PROJECTS

### CPEN 211 | VERILOG | SIMPLE RISC MACHINE

Oct 2020 – Nov 2020 | Group of 2

- Designed a reduced instruction set computer with a datapath and finite state machine controller.
- Implemented a limited sized RAM memory that supports I/O functionality for the RISC machine.
- Added support for ARM Assembly based instructions (arithmetic, memory-based, and branching): ADD, SUB, AND, MOV, LDR, STR, BEQ, BNE, BLT, BLE, BL, BX, and BLX.

### CPEN 221 | JAVA | GRAPHS AND VIRTUAL WORLDS

Oct 2020 – Nov 2020 | Group of 3

- Implemented the adjacency matrix representation of the graph data type.
- Implemented the Breadth First Search and Shortest Path algorithm.
- Implemented an AI class for the rabbit (animal type) to provide strategic actions based on analyzing the surrounding items.
- Used JUnit test to achieve branch and line coverage of more than 90%.

### CPEN 221 | JAVA | BUFFERS, CONCURRENCY, AND WIKIPEDIA

Nov 2020 – Dec 2020 | Group of 3

- Implemented thread-safe touch and update methods for a finite space finite time buffer that serves as a cache of items.
- Implemented thread-safe methods (zeitgeist and trending) that collect statistical information about Wikipedia requests.
- Implemented the timeout functionality for WikiMediatorServer that wraps and sends Wikipedia requests on behalf of a WikiMediator instance.
- Used JUnit test to achieve branch and line coverage of more than 90%.

## EXTRACURRICULAR

### UBC ENGI-YOU WELLNESS | ENGINEERS WITHOUT BORDERS, CANADA

Co-wellness coordinator | Jul 2020 – ongoing

- Facilitated stress breather activities for incoming engineering students at the Faculty of Applied Science, UBC.
- Co-hosted wellness workshops on the theme of stress and time management for first year students at UBC.

### UBC FGSU | FIRST GENERATION STUDENT UNION

Tech Volunteer | Sep 2020 – ongoing

- Co-planned the logistics of the GenOne Conference on the Brella platform.
- Co-hosted virtual help desk for tech support throughout the virtual conference.

## AWARDS

- DWISA (2019 - ongoing): Full ride scholarship worth over CAD 280'000 awarded by the University of British Columbia for academic excellence and leadership.
- TREK Excellence (2019 - 2020): Merit-based scholarship awarded to the top 10 % students of the Faculty of Applied Science, UBC.
- Dean's Honor List (2019 - ongoing): Awarded to students with an average of least A- taking a course-load of at 24 credits or more in the Faculty of Applied Science, UBC.
- APhO Winner (2016 - 2017): Winner of the 2nd prize on the Albanian National Physics Olympiad.