

# Natkamol Limapichat

Electrical Engineering

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## TECHNICAL SKILLS

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### Electrical

- FPGA Board (DE1-SOC)
- Various Microcontrollers
- Oscilloscope
- Signal Generator / 3-Phase Power Supply
- Transformers
- Motors
- 3D Printing

### Programming

- C
- Python
- Verilog / SystemVerilog
- Assembly(x86 / ARM)
- MATLAB / R
- HTML / CSS

### Software

- CircuitMaker / PSIM
- LabVIEW
- Altera Quartus
- ModelSim
- Simulink
- Visual Studio
- AutoCAD
- Inventor / SolidWorks

### Certifications

- ECE Machine Shop Training
- Workplace Bullying and Harassment Training
- WHMIS & Hazard Identification Systems

## ACADEMIC

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### University Of British Columbia

- Bachelor of Applied Science in Electrical Engineering; 6 of 8 academic terms completed
- Anticipated date of Graduation: May, 2020

## TECHNICAL PROJECTS

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### Motor Design and Development

January 2018 – May 2018

SolidWorks / Mechanical Prototyping

- Designed and developed brushed permanent magnet DC motors for a two-axis laser control system that drew images and objects
- Researched and developed prototype of various motor parts using 3D printing along with machining and implementing the completed designs
- Designed and built the infrastructure of the mechanical system
- Led the mechanical team and collaborated with the controls team to implement the system

### SLS 3D Printer Control System modeling

November 2017 – December 2017

MATLAB / Simulink

- Developed models to compute the direct and inverse kinematics of the simulated physical system
- Modeled the electrical and mechanical dynamic of the motor system along with electronic component and physical structures
- Designed and optimized a PID controller to maximize the speed of the system while minimizing position errors
- Collaborated with a partner to develop a presentational style report

### Magnetic Field Track Controlled Robot

April 2017 – May 2017

C8051F38x Microcontroller / STM32F051 Microcontroller / C / ARM

- Designed and constructed an autonomous robot capable of detecting a magnetic field generated by a guide wire
- Developed basic firmware and instruction set used by the robot to self-adjust and carry out movement instructions
- Implemented a communication protocol between the robot and the controller system using real-time inputs
- Collaborated and led a team of six and received an overall grade of 95% in the design studio course

## **Reflow Oven Controller**

**January 2017 – February 2017**

AT89LP52 Microcontroller / 8051 Assembly / Python

- Designed and coded a controller system used to monitor and control the process of reflow soldering electronic components to printed circuit boards
- Modeled a finite state machine to optimize temperature profile for the PBC reflow process
- Developed a temperature sensor and timer circuit with feedback control
- Implemented the system on a circuit board with real time control using push buttons and LCD User Interface

## **Reduced Instruction Set Computer (RISC)**

**October 2016 – November 2016**

FPGA Board / Verilog / ARM

- Developed a RISC machine to perform CPU computation tasks and memory allocation
- Designed a state machine along with pipeline register and instruction decoder to handle requests and instructions
- Debugged designs error in a team of two effectively

## **OTHER WORK EXPERIENCE**

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### **White Spot Triple Os, Vancouver, BC**

**July 2017 – August 2017**

Grill Cook

- Cooperated with other staff in a confine working space and provided support when needed
- Worked effectively in a fast-paced environment to prepare meals in a timely manner, while ensuring the quality of food
- Maintained cleanliness in the workplace, ensuring the equipment, utensils, and environment are up to Food Safe standard

### **SerVantage Health Service (SHHCC), Vancouver, BC**

**January 2014 – May 2016**

Food Services

- Screened patient's meal in detail in regards to allergen, texture, portion size to ensure that the patient receives proper food suitable for their health condition
- Worked effectively in an independent environment through set procedure, managed the kitchen unaccompanied, and carried out tasks unaided
- Maintained security in the workplace as a key holder and prevented any individual without proper authorization from entering sensitive area

## **PROFESSIONAL AFFILIATIONS**

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### **Engineers and Geoscientists BC (EGBC)**

Student Member