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| |  | | --- | | **Jacob Nielsen** | | 2A Mechatronic Engineering  ID: 20338042 |   Date of birth : 13 March 1991 | |  | | --- | | **Contact** | | Tel : (226) 201-0430  e-mail : jakek.nielsen@gmail.com  610 Pineridge Rd, Waterloo, Ontario N2L5N9 | |
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| |  | | --- | | **Key Skills/Attributes** | |          Significant experience with VB.NET, C++, and C   * Some work with Assembly, Python, Java, Scheme, and Turing            Work experience designing and implementing the firmware, drivers, and GUI for both a 3-axis CNC wood lathe and a 3D scanner           Experience in the design and production of semi-complex circuit boards involving I2C communication and  microcontrollers           Some machining experience on an engine lathe and mill, as well as basic exposure to engineering drawings   * Excellent work ethic and enthusiasm | | |
| |  | | --- | | **Education** | | |  | | --- | | **Candidate for Bachelor of Science**, Honours Mathematical Physics,  University of Waterloo,  Waterloo, ON,  Sept. 2009 – Sept.2010  **Relevant Courses**:  Designing Functional Programs, Elementary Algorithm Design and Data Abstraction, Linear Algebra 1, Linear Algebra 2, Calculus 1, Calculus 2.  **Candidate for Bachelor of Applied Science**, Mechatronic Engineering,Co-operative Program,  University of Waterloo,  Waterloo, ON,  Sept. 2010 – present | | **Relevant Courses**:  RCL Circuits, Ordinary Differential Equations, Mechanics of Deformable Solids, Physics: Dynamics, Microcontrollers and Digital Logic. | |  | | | |

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| |  | | --- | | **Education Cont'd** | | |  | | --- | |  | | **Ontario Secondary School Diploma**, Preston High School, Cambridge, ON, June 2009           Ontario Scholar  **Relevant Assignments**:  **LED Analog clock assignment,** Computer Engineering, Jan - June 2008:           Co-designed an "analog" clock using demultiplexing to control 72 LEDs to display the hands of a clock.           Used Turing language to synchronize the LED clock to the system clock and interface with the parallel port. | |  | | |
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| |  | | --- | | **Collateral Learning** | | |  |  | | --- | --- | |  |  |  |  |  | | --- | --- | | **2008**  **2007**  **2001 and 2002** | Quantum Cryptography Summer Camp (University of Waterloo affiliated)  Programming Camp (Through the University of Toronto)  ESQ (Through the University of Waterloo) |  |  |  | | --- | --- | |  |  |     Participation in the University of Waterloo Mathematics Competitions including:                The Gauss (both), Pascal, Fryer, Cayley, Galois, Fermat, Hypatia, and Euclid math contests                  Consistent participation in all school bands throughout high school, as well as band workshops                at Laurier University. | |

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| |  | | --- | | **Work Experience** | | |  |  | | --- | --- | | **University of Waterloo, Waterloo, Ontario**  **Electrical/Software Designer**    Designed driver circuit to control 200 stepper motors and read 200 pressure sensors via I2C    Designed driver software for experimental 3-axis CNC lathe    Designed and manufactured a stand for use with a CNC machine to set tool lengths.    Designed and implemented control circuit, pendant controller, firmware, custom communication protocol, and GUI for a 3D scanner    Received an outstanding on work term evaluation | **Full-time job**  **May 2010 to December 2010** | | **Len's Mill Store, Cambridge, Ontario**  **Sale's floor staff** | **Part-time job**  **October 2006 to August 2009** | |   Provided general customer service    Cleaned store    Responsible for some repeat customers | | | |
| |  | | --- | | **Volunteer Experience** | | |  |  | | --- | --- | | **W. G. Johnson Centre, Cambridge, Ontario** | **Monthly volunteer experience** | | **Setup Staff** | **October 2006 to August, 2009** | |   Customer service    Setup, and tear down    Over 70 hours volunteered | | | |
| |  | | --- | | **Activities and Interests** | | |  |  | | --- | --- | | **Programming** | Open GL / GLSL experimentation in C++  Experimentation with Arduino | | **Mechanical** | Currently designing a 3D printer | | **Music** | French horn and guitar | | |
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| |  | | --- | | **References** | | |  | | --- | | **Available upon request** | | |