8521 Saint Louis Ave., Skokie, IL 60076
Portfolio: swiz23.github.io/Portfolio

Solomon Wiznitzer

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Objective: To obtain a job in **robotics**. Specific interests include mechatronics, artificial intelligence, and controls.

Technical Skills

- ROS, Python, C/C++, Rviz, Gazebo, Linux, Git, GitHub
- Biomedical Instrumentation, Circuit Design, Soldering
- Programming ARM & PIC type microcontrollers

- MATLAB & Simulink, CAD – SolidWorks, Onshape
- PCB design with Autodesk Eagle
- Digital Signal Processing & Controls

Education

Northwestern University – Evanston, IL
Major: M.S. in Robotics (2017 – 2018)   **GPA: 3.89/4.00**
Focus: Mechatronics, Controls, Computer Vision, Machine Learning, AI, Embedded Systems, Autonomous Systems

Milwaukee School of Engineering - Milwaukee, WI
Major: B.S. in Biomedical Engineering (2013 - 2017)   **GPA: 3.95/4.00**
- Dean's List (High Honors) for all four years
- Merit scholarship, diversity scholarship, and Presidential Achievement Award recipient
- Founder and president of the Jewish Association of MSOE (JAM) (2014 – 2017)
- Corresponding Secretary of Tau Beta Pi Engineering Honor Society (2016-2017)
- Tau Beta Pi Most Improved Chapter Award (2017)
- Designee for "Who's Who Among Students in American Universities & Colleges" (2016)

Projects

Check out my portfolio for more details – swiz23.github.io/Portfolio
Robotics   (Sep. 2017 – March. 2018)
- **Final Project –** Designed and built three omnidirectional, mecanum-wheeled robot platforms; used PID control, ROS, Python, C/C++, kinematics, Intel NUC, Wifi, Bluetooth, TM4C123GXL LaunchPad Tiva C MCU, PCB design, Linux, SolidWorks, Soldering, Crimping
- **Winter Project** – Programmed a seven-degree-of-freedom robotic arm to balance an inverted pendulum; used LQR control, ROS, Python, rigid-body motion, forward and inverse kinematics, Jacobians, Euler-Lagrange Equations, Mathematica, Bluetooth, Onshape, Microduino
- **Mechatronics** – Implemented a motion control system to make a brushed, DC motor follow reference trajectories; used C, MATLAB, the PIC32MX795F512H microcontroller, H-bridge, encoder, and current sensing chip
- **Robotic Manipulation** – Simulated a wheeled mobile robot's movement as it travels along a specified path; used rigid-body motion, forward and inverse kinematics, Jacobians, and feedback control with the V-REP simulator
- **Plinko Game** – Modeled a square prism navigating a Plinko board; used Lagrangian Dynamics, impact constraints, external forces, constrained dynamics, and Mathematica
- **Computer Vision** – Designed a "finger sniper" game that tracks two fingertips and performs gesture detection; used Python, OpenCV, color segmentation and morphological operations

Automatic Hand Support System – GE Healthcare   (Sep. 2016 – May 2017)
- Led design team in collaboration with GE Healthcare to build a hand support system for the Ultrasound Robotic Hand Scanner to help rheumatoid arthritis patients; 3D modeled the supporter with SolidWorks and controlled it with MATLAB, motors, and accelerometers

Blood Glucose Control   (March 2017 – May 2017)
- Modeled the regulatory systems of a diabetic and a healthy person and the effect that varying levels of insulin has on their blood glucose level; used MATLAB and Simulink

CT Scan Analysis   (Jan. 2017 – Feb. 2017)
- Created a MATLAB script that loads CT scan images, sorts and rescales them, performs windowing, and generates videos of the anatomy in the axial, sagittal, and coronal planes; used medical image processing

Brainwave Analysis   (Sep. 2016 – Nov. 2016)
- Wrote MATLAB code to analyze Event Related Potential (ERP) signals from an awake and unconscious rat using digital signal processing
- Represented EEG data in the frequency domain and analyzed the relationship between sampling frequency and aliasing

Electrocardiogram Amplifier Design   (Sep. 2016 – Oct. 2016)
- Built and tested an ECG amplifier containing operational and isolation amplifiers, and high/low pass filters to fit set constraints; used resistors, capacitors, DC and AC voltage sources, an oscilloscope, and a multimeter

Work Experience

Anixter | Glenview, IL – *Associate Engineering Intern*   (June 2017 – Aug. 2017)
- Lab-tested Cat-6 and Cat-5 cables for quality standards using a network analyzer
- Evaluated various video management security systems for ease of use, design, and camera integration

Milwaukee School of Engineering | Milwaukee, WI – *Student Technician*   (June 2016 – May 2017)
- Offered technical support like soldering circuits, calibrating oscilloscopes/multimeters, and fixing electronic equipment

Milwaukee School of Engineering | Milwaukee, WI – *Student Tutor*   (Sep. 2016 – Feb. 2017)
- Tutored Calculus, Physiology, and Circuit subjects at the Raider Center for Academic Success