

182-08 64th Ave.  
Fresh Meadows NY 11365

# DAVID CHENG

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## EDUCATION

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<b>New York, NY</b>	<b>New York Institute of Technology</b>	<b>Sept 2017-May 2022</b>
• <b>Major:</b> M.S. Electrical & Computer Engineering, GPA: 4.00/4.00		Expected May 2022
B.S. Electrical & Computer Engineering, GPA: 3.89/4.00		Graduated May 2021
• <b>Degree Honors (Undergraduate):</b> <i>summa cum laude</i> , Presidential Honor List (2018-2021)		
• <b>EE Coursework:</b> Microprocessors & Embedded Systems, Electrical Circuits, Electronics Lab I-IV, VLSI Design		
• <b>CS Coursework:</b> Software Engineering, Operating Systems, Data Structures		

## WORK EXPERIENCE

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<b>Teaching Assistant</b>	<b>New York Institute of Technology</b>	<b>Sept 2021-Dec 2021</b>
• Administered weekly tutoring sessions to <i>Signals and Systems</i> students to help keep them on track with course material and assignments.		
• Assisted professor in assignment grading and file organization.		

## PROJECTS

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**GitHub Portfolio Page:** <https://daviycheng.github.io/>

### **Wearable Posture Corrector Device, Self-Project**

- Developed a wearable device that notifies the user when they are slouching by integrating SEFR machine learning algorithm.
- Used I2C to interface accelerometer sensor data with Arduino microcontroller in real-time.
- Improved device battery lifespan to 4 and ½ days by decreasing the system clock frequency and removing unused internal LEDs.
- **Utilized:** C/C++, Python, MATLAB, Arduino, ATmega328 MCU, Multimeter, Soldering, Fusion 360

### **Automated Blinds, Self-Project**

- Developed self-operating blinds that hourly adjusts to one of three positions by programming an ESP8266 microcontroller that checks the current weather and time of day through Wi-Fi.
- Used the OpenWeatherMap API to retrieve weather and time of day information by using Arduino JSON library.
- Established a low power state by integrating ESP8266 deep sleep mode with non-volatile memory.
- **Utilized:** C/C++, Arduino, ESP8266 Wi-Fi MCU, Fusion 360

### **Autonomous Locking Knee Brace, Senior Design Project**

- Developed an autonomous locking knee brace that locks the preset flexion on brace when user is falling by integrating Random Forest machine learning algorithm with two push-pull solenoids.
- Established a 94.5% fall detection accuracy for my movements using confusion matrix.
- **Utilized:** C/C++, Python, Arduino, MATLAB, ATmega2560 MCU

### **Wellness Website (Front-End), School Group Project**

- Collaborated with 3 other team members to develop a to-do list website that focuses on meal/exercise planning, calorie count, tracking history, and recommendations.
- Designed home and dashboard webpage using HTML, CSS, and JavaScript that allows users to easily navigate between the different features.
- **Utilized:** HTML/CSS, JavaScript, Bootstrap 5, VSCode, Git, GitLab, Lucidchart

## SKILLS

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- **Programming:** (proficient): C/C++, HTML, CSS, MATLAB (familiar): Python, Java, JS, Assembly (8051)
  - **Software:** VSCode, Keil uVision5, Arduino IDE, IAR Embedded Workbench, PyCharm, Git, Autodesk Fusion 360, Multisim, PSpice, MS Office