Matthew Nelson

Phone: (818) 689-3852 | Berkeley, CA
[Email](#) | [LinkedIn](#) | [Portfolio](#) | [Website](#)

EDUCATION

University of California Berkeley, College of Engineering — Berkeley, CA
Major: Mechanical Engineering, Bachelor of Science — May 2022
Major: Theater and Performance Studies, Bachelor of Arts
Relevant Coursework: Manufacturing & Tolerancing, Lean Manufacturing, Solid Mechanics, Product Development, Mechatronics Design, Mechanical Behavior of Engineering Materials, Experimentation & Measurements, Statistics & Data Science for Engineers

RELEVANT QUALIFICATIONS

- **Prototyping & Design:** Figma, Canva, Adobe (Portfolio, Premiere Pro, Illustrator, Photoshop), AutoCAD, SolidWorks
- **User-Research:** User Interviews, Journey Mapping, Persona Building, Qualitative Usability Testing, Rapid Prototyping
- **Software Proficiency:** SolidWorks Finite Element Analysis (FEA) Simulation, C++, Python, Arduino IDE, Xcode iOS IDE

RELEVANT PROJECT EXPERIENCE

Berkeley College of Engineering | The Rubble Robot — Berkeley, CA
Mechatronics Design, Electrical Design & Arduino IDE — **August 2021 – December 2021**
- Designed mid fidelity prototype of a two-car emergency response robot meant to expedite search & rescue of earthquake victims
- Developed C++ coding scripts in Arduino IDE to describe kinematic behaviors via two ESP32 microcontrollers
- Integrated electrical subsystems with 5 states of motor behavior using 2 push buttons, 2000mAh battery, 8 LEDs, & 2 DC motors
- Incorporated 20cm obstacle detection range with time delays via ultrasonic sensor, distinguishing motion for obstacles vs. victims
- Dimensioned electrical wiring and component placement to optimize ease of assembly on a two-car bodied robot

WORK EXPERIENCE

Massachusetts Institute of Technology (MIT) — Cambridge, MA
Artificial Intelligence & Deep Learning Fellow — **June 2021 – August 2021**
- Designed python-based computer programs using convolutional neural networks (CNNs) & image classification algorithms
- Implemented modular architecture to develop autoencoder reconstruction and noise removal of low-resolution digital drawings
- Identified system-level optimization flaws in food storage units & designed a YOLO v4 object detection solution to mitigate waste
- Surveyed 50+ users to define usage patterns, psychographics & personas that narrowed target audience & ensured user satisfaction

South Coast Engineering Group, Inc. — Calabasas, CA
AutoCAD 2021 Draftsman — **June 2020 – August 2020**
- Developed intricate 2D & 3D orchestrations of mechanical, electrical & plumbing (MEP) designs for interior constructions
- Drafted 2D seismic bracing on suspended piping systems to showcase multidirectional movement restriction & force redistribution
- Designed & standardized geometrically unconventional ducts to optimize functionality & pressure efficiency for unique obstructions
- Tabulated capacities and pressure losses of domestic water meters to improve longevity of domestic HW/CW water piping

Coleman Fung Institute for Engineering Leadership — Berkeley, CA
Research & Design Fellow, University of California Berkeley — **March 2018 – May 2019**
- Communicated with executives to schedule multi-project deliverables that effectively manage deadlines & competing priorities
- Designed mid-fidelity web-based prototype using Figma to represent a social networking wireframe for elderly patients
- Prototyped population mapping app for UC Berkeley's 27 libraries to inform students of population densities when studying
- Collaborated with an NGO to design a mobile app for children's nutrition education that serves 10,000+ students at 17 schools

National Broadcasting Company (NBCUniversal) — North Hollywood, CA
Mechanical Engineer, Universal Studios Hollywood — **June 2017 – August 2017**
- Facilitated interdepartmental communication between Rides & Show crew to streamline research & remediation of defective parts
- Optimized pneumatic motor remodel with cost-benefit analysis portfolio projected to reduce motor repairs by $3,000+ annually
- Drafted a 3D mechanical design package compiled with 36 brackets to streamline & homogenize power tram repairs
- Developed 2D engineering specifications that capture bracket dimensionality & visual design details for attraction manufacturers