# Sean Kalani McClure

## EDUCATION

**Arizona State University,** Tempe, AZ — Electrical Engineering (BSE)
August 2020 - May 2024

I am currently pursuing this degree and am going into my 4th year.
Current GPA: (3.52/4.0)

**Arizona State University Polytechnic,** Mesa, AZ Applied Physics (minor)
May 2021 - May 2024

Currently working towards this minor in concurrence with my Electrical Engineering BSE and am on track to finish the minor and BSE at the same time.
Current GPA: (3.55/4.0)

## COURSEWORK (Relevant to application)

**PHY241**: Engineering Physics (III) **Grade: A**

- Physical and light wave optical theory, optical lens design, wave particle duality, relativity, introductory quantum mechanics.

**EEE241**: Fundamentals of Electromagnetics **Grade: A**

- Derivations and applications of Maxwell's equations using multidimensional vector calculus.
- Used Matlab and python scripts to find numerical solutions of Poisson's and Laplace's partial differential equations in different geometries

**EEE341**: Engineering Electromagnetics **Grade: A**

- Time-varying electromagnetic fields, waves in homogeneous and stratified media, transmission lines, waveguides and cavity resonators, and antennas.
- Labs for this class include testing optical properties of different materials using different polarization incident light waves, designing matching networks for microwave frequency circuits in ADS, and construction and simulation of different types of waveguides in ANSYS HFSS.

**EEE202/334/335** (Circuits 1-3) **Grade: A**

- EEE202, KCL, KVL, norton, thevenin, for linear and nonlinear circuits and el
- Labs for this class included building a physical circuit and comparing it to a simulated circuit in ltspice, the circuits were voltage dividers, filters, etc.
- EEE334/335 covered analog/digital applications of diodes, mosfets, and BJTs, in amplifiers, inverters, NAND/NOR gates, and differential amplifiers
- The lab for these classes required us to build and test the above circuits using function generators, oscilloscopes, and cadence simulation software

**EEE352**: Quantum Properties of Electronic Materials and Photonics **Grade: A**

- Crystal strcture, quantum mechanics of electrons, free electron theory of metals, Band theory of solids, Semiconductors: Doping, holes, statistics, transport, and excess carriers, p-n junctions, MOSFETs
- Use of Matlab for animations of propagating and standing waves, numerical methods for solving schrodinger's wave equation in free space and in confined geometries, and construction of a wave packet engine for showing interactions between quantum particles all done in matlab

**PHY202**: Python for Physicists **Grade: A**

- Numerical methods for solving orbital physics problems, simulations of complex kinematic systems, and general large scale data manipulation


## CONTACT

**Phone: 619-955-0973**

**Email: xseanmcclurex@gmail.com**

Linkedin: https://shorturl.at/osDHY


## AWARDS

**ASU Ira A. Fulton School of Engineering Dean's List Spring 2022 / Fall 2022 / Spring 2023**

- Maintained term semester GPA>3.5

**Accepted into ASU Electrical Engineering MSE program**

**New American University Scholar - Dean's Award**

## PROJECTS

**Rotary Spark Gap Tesla Coil**
Using a RSG to create a high frequency quasi ac signal that is fed into a tesla coil arc discharges of up to 14" were observed

**Polarity Free Magnetic Repulsion for ferromagnetic levitation**
Using a high RPM motor and a NdFeB (N52) magnet to create a macroscopic oscillating magnetic dipole, standing magnetic fields can create unstable equilibrium points where ferromagnetic materials can levitate.

## SKILLS

Circuit theory, Matlab, Python, Ltspice, Cadence, ADS, ANSYS HFSS, 3D modeling and CAD (Autodesk Inventor/Fusion 360), 3D printing experience, lab and machine shop experience

## Extracurriculars

ASU Mens Gymnastics team, won national championships in 2021, part of ASU Rubiks Cube Club

## LANGUAGES

English and Certified bilingual in Spanish