Sivan Syed

(512) 910-0199 ❖ sivan.syed@gmail.com ❖ Austin, TX ❖ www.linkedin.com/in/sivan-syed ❖ https://github.com/Ilgneous

EDUCATION

The University of Texas at Austin (GPA: 3.8/4.0) **May 2027**

Bachelor of Science, ***Electrical and Computer Engineering*** *Bachelor of Science,* ***Physics***

Certificate, ***German*** *Minor,* ***Materials Science and Engineering***

Relevant Coursework: Embedded Systems, Solid-State Devices, Power Electronics, Digital Logic Design, Fundamental Electronic Circuits, Mechanics of Solids, Circuit Theory, Electrodynamics, Thermodynamics and Statistical Mechanics, Computational Physics

EXPERIENCE

Adom Industries Inc. / R&D Design Engineer / Electrical and Robotics Engineering **May 2025 – August 2025**

- **Architected** the mechatronic **drivetrain** for reliable autonomous payload transfer
- **Applied FEA** to drive material topology, **cutting material usage** by 88%; validated with **welded prototypes** and **bench testing**
- **Authored** bring-up procedures and DFM notes (wiring looms, EMI/grounding, thermal interfaces); reduced assembly effort.

Sandia National Laboratories / R&D Computational Engineer / Pulsed Power Physics **May 2024 – August 2024**

- **Analyzed** fluid **RTIs** and **RMIs** to diagnose inaccuracies in ALEGRA **simulations**
- **Built** a fast **current-pulse generator** to synthesize **10k+ waveforms** for ML-aided **surrogate modeling** and **UQ pipelines**
- **Wrote ODE/trajectory solvers** to track radial liner implosions and compare ALEGRA predictions and observed instability spectra.

FSAE Longhorn Racing / Dynamics + Vehicle Modeling Engineer / Steering Lead, Member **September 2022 – August 2025**

- **Designed** an anti-Ackermann geometry with **compliance modeling** to tune **slip-angle behavior**; verified through Python simulation and track feedback loops
- **Re-engineered** steering column using **carbon-fiber** layups, cutting system weight ≈68% while **maintaining torsional rigidity**
- **Created** a **modular** gearbox CAD stack (GD&T, CNC and composite fab) with fast-swap adjustability for testing days

Large Enriched Germanium for Neutrinoless Double-beta Decay – Karol Lang / High Energy Particle Detectors **November 2022 – Present**

- Analyzing **scintillating and wavelength shifting fibers** to detect the neutrinoless double-beta decay
- **Visualized** and analyzed **positional and intensity variation** from Fermilab's Hadron Monitor for preparation to be repaired
- **Simulating** through a **Docker supported codebase**, MaGe, photon emissions from scintillating fibers

Projects

E-Bike Boost Converter Design ***Relevant Skills: Power Electronics, Embedded Systems, PCB Design***

- Designing a PCB for a DC-DC **boost converter,** minimizing **EMI**, critical loop areas, and gating loop areas.
- Interfacing with **digital PWMs** and **ADCs**

Ping Pong Ball Equilibrium Robot ***Relevant Skills: Mechatronics, Robotics, Controls, C, C++, Power Electronics***

- **Developing inverse kinematics and PID control** of a **robotic platform** for precise movement correction within ±0.5 mm accuracy.
- Integrating **high-torque servos**, **power circuits**, and custom **3D-printed components** to engineer the **electromechanical system**

Wireless Communication via Infrared LED and UART ***Relevant Skills: Embedded Systems, C, C++, Firmware, UART, SPI Protocol***

- Implemented firmware with **UART** to transmit data with baud rate of **2375 bits/sec** and bandwidth of **148 bytes/sec**
- Verified with **oscilloscope** the **IR sensor receiver** and IR Led transmitter to transmit slide potentiometer data for videogame display

Attenuation Lengths of Scintillating Fibers ***Relevant Skills: Python, SOLIDWORKS, Manufacturing, Sensor Integration, Data Analysis***

- Measuring and **analyzing attenuation lengths** of >100 wavelength shifting fibers from Eljen with 520nm wavelength LEDs
- Designed via **SOLIDWORKS**, **3D printed**, and **milled** 20 mechanical mounts for a sensor system of **SiPMs**, **PMTs** and **Spectrometers**

Crystal Oscillator Resonant Frequency and Mass Flux Tracker ***Relevant Skills: Circuit Design, KiCAD, PCB Design***

- Created **a sensor** to measure **resonant frequency** with <5% error of a **Quartz Crystal Oscillator** to find **Ytterbium** flux in **vacuum**
- **Prototyped** circuit design via breadboards and 3D prints to ensure design validity

Steering Gearbox ***Relevant Skills: CAD, SOLIDWORKS, ANSYS, Manufacturing, CNC, Manual Mill, Lathe***

- Performed **stress analyses** of various parts with **finite element analysis** from **Ansys** and **SOLIDWORKS**
- Calculated steering efforts and ratios with high level **vehicle modeling** and **computational verification**
- Designed various parts such as **gearboxes**, **steering racks**, **carbon fiber** tubing in **SOLIDWORKS**

SKILLS

Software Language Proficiencies: Rust, C, C++, ARM, Python, MATLAB, Bash, JS, HTML, CSS, LaTeX

Simulation/Modeling Software: Fusion360, KiCAD, LTSpice, FLASH, MaGe, SOLIDWORKS, VCarve, Inventor, Ansys