Charlie Kley

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EDUCATION

Duke University Durham, NC
Bachelor of Engineering in Mechanical Engineering Degree Expected May 2027
Cumulative GPA: 3.94/4.00; Dean's List with Distinction 2023, 2024, 2025

Tools and Technologies: SolidWorks, Fusion360, Python, Arduino, Java, FEA, 3D Printing, Microsoft Suite
Relevant Courses Taken: Heat & Mass Transfer, Fluid Dynamics, Control & Systems Engineering, Thermodynamics, Mechanics of Materials, Statics, Dynamics, Mechatronics, Structures and Properties of Solids, Differential and Partial Equations, Multivariable Calculus, Linear Algebra, Physics (Mechanics, Electricity & Magnetism)

WORK EXPERIENCE

Ford Audio-Video — Austin, TX **Summer 2025**
Project Engineer Intern
- Supported installation and integration of large-scale AV systems for multi-million-dollar facilities
- Assisted in system commissioning and troubleshooting of professional AV hardware across high-profile projects, including the University of Texas Football Stadium locker room and venues with 800+ speakers
- Collaborated with engineers and contractors to ensure seamless deployment of audio-visual solutions

Gall Group Lab — Durham, NC **Spring 2025 – present**
Undergraduate Research Assistant
- Conducted tensile tests and analyzed stress strain curves of 3D printed polymers to determine optimal material
- Investigated sterilization methods to enable reuse and durability of 3D printed parts in the medical field

Neckog Industries — Austin, TX **Summer 2024**
Mechanical Engineering Intern
- Responsible for designing and prototyping 10+ components of a desktop injection molding device
- Developed gear pumps, valves, sheet metal housing, and stepper motor assemblies in Fusion360
- Ensured strict tolerances for crucial parts like motor shafts and pump gears for high quality function and assembly
- Filed a provisional patent for a three-inlet manifold-gear pump including technical drawings
- Researched and obtained materials from local manufacturers for late-stage prototyping and testing of device

PROJECT EXPERIENCE

Wildfire Burn Severity Predictor Using Geospatial Machine Learning **Spring 2025**
- Applied machine learning (Random Forest classifier in Python) to predict wildfire burn severity with 70% accuracy using only Landsat 8 imagery and SRTM elevation data.

Children's Toy Space Maze Project **Spring 2024**
- Designed an engaging space-themed toy in SolidWorks that is suitable and safe for a happy meal toy
- Designed pieces for injection molding, and calculated manufacturing costs to fit within budget constraints

Seeing Sounds Engineering Design Project **Fall 2023**
- Collaborated to design and create an engaging way to visualize sound using multiple different inputs for the children at the Shakori Hills Music Festival using the engineering design process
- Presented our design to the client and at a showcase, and received positive feedback from the product's use

Eagle Scout Project **Spring 2022**
- Designed and built an outdoor classroom for West Ridge Middle School, consisting of 4 wooden tables, 8 benches, a podium, and 5.5 tons of gravel to create an outdoor area for children to work

EXTRACURRICULAR EXPERIENCE

Duke Aerospace Engineering Club **2024 – present**
- Machined precision rocket motor components ensuring compatibility and tolerance with 6 other sub-teams
- Manufactured solid propellant for a successful static hot fire and a 30,000 ft launch, including mixing, casting, and integrating propellant grains for motor assembly

Project Tadpole Engineering Club **2024 – present**
- Modified 15+ children's toys to be more accessible to children with disabilities

Duke Adaptive Explorers **2024 – present**
- Organized activities for individuals with disabilities, including hiking, kayaking, and outdoor sports

ADDITIONAL INFORMATION

Campus Activities: Duke SHAPE, Secretary of Theta Chi Fraternity, Duke Club Running, Duke Adaptive Explorers
Languages: English (native), Spanish (conversational)