

Julia L. Langlois

FULL-TIME AVAILABILITY: SUMMER 2027

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EDUCATION

Pennsylvania State University

Expected May 2027

B.S. Mechanical Engineering, GPA: 3.97, Dean's List every semester | ASME Officer | Tau Beta Pi

Current Coursework: Machine Design, Engineering for Manufacturing, Additive Manufacturing Lab, Applied CFD

B.S. Wildlife & Fisheries Science, 2023 | GPA: 3.96 | Magna cum laude

FUNCTIONAL EXPERIENCE

Mechanical Design and Test Equipment

- Developed shaker-test specifications from road-excitation literature and quarter-car response calculations, defining a 1–60 Hz vibration band and three paired rotation/vibration operating cases in a sponsor-approved smart-tire rig proposal. *Smart-tire senior design, Fall 2026–present.*
- Selected gear ratios and spool radius for a 3 V winch using torque calculations; contributed CAD to a 90:1 3D-printed gearbox prototype and recommended improved lubrication to reduce friction, helping achieve successful load testing. *Nittany Lion Lift, Fall 2026.*
- Created SolidWorks models of industrial couplings from engineering drawings and developed a safety-bracket concept from hardware measurements; obtained supervisor approval of the bracket design. *Ameridrives.*

Engineering Analysis and Research

- Compared two supplied propeller casting designs in SOLIDCast using density and solidification plots; quantified a 24% decrease in maximum simulated solidification time (8.86 to 6.69 min), identified persistent hub porosity, and recommended riser changes or local chills. *Course project, Fall 2026.*
- Simulated 30 m/s airflow around a golf ball in ANSYS Fluent by creating the flow domain and mesh, configuring boundary conditions, and applying SST k- ω turbulence modeling with SIMPLE coupling; generated surface-pressure contours to assess pressure distribution. *Applied CFD class project, Fall 2026.*
- Investigating vaginal drug-film dissolution under Dr. Jun Zhou through literature review of microfluidic flow and dissolution models to inform planned ANSYS Fluent simulations and comparison with experimental data. *Penn State Behrend, Fall 2026–present.*

Controls and Electrical Planning

- Produced BAS power plans by calculating equipment VA loads, selecting transformer capacities, and assigning circuits within electrical and cost constraints; delivered Excel load schedules and marked-up controls drawings coordinated with electricians for installation planning. *Siemens.*
- Developed practical skills in low-voltage BAS controls through hands-on wiring and controller-logic training, translating system operating requirements into relay circuits and actuator control sequences. *Siemens.*
- Compiled a BAS alarm plan for approximately 1,000 points by extracting requirements from controls drawings, reconciling existing alarm coverage in Excel, and resolving discrepancies with project engineers; secured engineering-manager approval for client delivery. *Siemens.*

Process Improvement and Troubleshooting

- Automated field-data capture with Microsoft Forms and Power Automate, routing records directly into Excel to eliminate manual transcription; the field team adopted the workflow, reducing data-processing time by an estimated 50%. *AECOM.*
- Resolved sampling-well pump setup and operating issues through hands-on troubleshooting, enabling well purging before water collection; documented step-by-step procedures for subsequent field staff. *AECOM.*

PROFESSIONAL HISTORY

Siemens

Project Management Intern, Building Automation Systems (BAS)

New York, NY
May 2026 - August 2026

AECOM

Scientist (Full-time through July 2025; part-time thereafter)

New York, NY
July 2023 - Present

Ameridrives International

Mechanical Engineering Intern

Erie, PA
May 2019 - August 2019

TECHNICAL SKILLS

CAD & Simulation: SolidWorks, SOLIDCast, Inventor, ANSYS Fluent, ANSYS (structural coursework), MATLAB

Controls & Manufacturing: Control and wiring diagrams, P&IDs, analog/digital I/O, FDM 3D printing, Cura

Data & Documentation: Excel, Microsoft Forms, Power Automate, R, Bluebeam Revu