

Kip Gaddis

keg5276@rit.edu | (802) 299-0177 | [linkedin.com/in/kip-gaddis](https://www.linkedin.com/in/kip-gaddis) | kipgaddis.com

Education

Rochester Institute of Technology

Expected Graduation: 2027

- Bachelor of Science in Mechanical Engineering Technology

Course Work

Foundations and Characterization of Metals | Foundations and Characterization of Non-Metallic Materials | Manufacturing Processes | Circuits I | Principles of Statics | Strength of Materials | Thermal Fluid Science | Mechanical Dynamics

Experience

RIT Nano Power Research Laboratories

Rochester, New York

Research Assistant

August 2025 - Present

- Helping to grow and test thermoradiative cells, used to convert heat from a radioisotope source into infrared light and generate electricity.
- Helping to modify cryostat testing apparatus

RIT Semiconductor and Nanofabrication Laboratory

Rochester, New York

Process Engineering Intern

January 2025 - August 2025

- Designed and optimized low pressure chemical vapor deposition wet-oxide and nitride processes to shorten cycle time while maintaining uniformity
 - Modeled growth using Deal–Grove and Arrhenius kinetics to set dry–wet–dry oxide segments and predict nitride rates across tube zones.
 - Tuned Dichlorosilane/ammonia flows, pressure, and axial temperature profile to balance front/center/back rates and hold thickness variation within target.
 - Streamlined pump/purge, ramp, and cooldown steps to remove non-value-added time while controlling particles.
 - Mapped films with reflectometry and profilometry and iterated recipes from measured data.
 - Over 20% reduction in time with less than 2% non-uniformity across wafer for oxide
- Helped to install new ion implanter from ground up
 - Traced wiring harness reconstructed from multiple schematic sources (3 Varian 350D variations)
 - Troubleshoot relay logic
 - Performed systematic bring-up to operating voltage
 - Optically aligned beamline

RIT Formula SAE Racing

Rochester, New York

Electronics Design and Test Engineer

August 2022 - Present

- Responsible for electromagnetic interference (EMI) shielding and mitigation as well as design of PCBs and High voltage harnessing.
 - Performed heat mapping of EMI vs. distance on phase cables, high voltage DC, and inverter enclosure.
 - Routed high voltage harness through the car to minimize EMI coupling to LV harness
 - Designed a relay economizer to limit current draw from isolation relays after closing
 - Designed a relay distribution board to switch 24 volts for inverter startup

Aerodynamics Design Engineer

- Designed aerodynamic and structural components of the rear wing for a first-place winning formula SAE car.
 - Optimized spacing for the tri-element system through CFD simulation.
 - Designed the endplates to optimize manufacturability, car serviceability, downforce, and vortex control.
 - Designed and helped manufacture swan neck support system.
 - Performed CFD and static structural simulations in Ansys.
 - Performed wind tunnel testing at Ford's wind tunnel 8.
- CFD Validation Device Development
 - Managed the design and fabrication of a custom pitot tube and wing element with integrated pressure taps

Kip Gaddis

keg5276@rit.edu | (802) 299-0177 | [linkedin.com/in/kip-gaddis](https://www.linkedin.com/in/kip-gaddis) | kipgaddis.com

Projects

Vacuum Tube Amplifier

- Designed and built a van Waarde-style cathode follower, output transformerless headphone amplifier, delivering ~26 dB gain, ~8 Vrms clean into 300 Ω (~210 mW) with <1 mVrms noise at the jack.
- Engineered a robust power architecture with split transformers solving thermal headroom and bridge-dissipation issues and ensuring stable heater voltage
- Implemented low-noise layout practices (true star ground, short rectifier-to-reservoir loops, twisted/segregated heater runs, grid stoppers at pins, HV snubbers) to achieve dead-quiet idle at full volume.
- Performed systematic bring-up and fault isolation with DMM, scope, and clamp meter.

Gas Turbine Generator

- Designed and currently building a gas turbine generator out of an automotive turbocharger able to run on alternative fuels.
- Currently designing a fully automated control system for the generator.

Linear Particle Accelerator

- Currently helping to design and build a linear particle accelerator for semiconductor research.

Combustion Light Gas Gun

- Currently a single stage combustion light gas gun, plan for a dual stage version in the future.
- Used for hyper velocity and asteroid impact research

Designed and built solid fuel rockets

- Designed, built and tested solid rocket motors based on a simple KNO_3 and sucrose based propellant.

Camera Lucida

- Currently building an optical drawing aid that projects view onto paper below

Schlieren imaging

- Simple schlieren imaging setup that I plan to use in testing of a multi stage combustion light gas gun.

Tool certifications

Tystar Tytan 4600 LPCVD nitride and oxide, Manual lathe and mill, Filmetrics F40 thin film analyzer, Rudolph Ellipsometer Auto-EL IV, Woollam VASE variable angle spectroscopic ellipsometer, plasma asher, plasma etcher, currently being trained on MOCVD/MOVPE, manual mill/lathe

Certifications/Awards

ISO 6 / Class 1000 clean room

- RIT Semiconductor & Nanofabrication Laboratory

Self Contained Breathing Apparatus (SCBA)

- For safe maintenance of high-hazard tools (ion implanter, MOCVD) - RIT Semiconductor & Nanofabrication Laboratory.

SOLIDWORKS CAD Design Associate (CSWA)

- Earned for demonstrated competencies in mechanical design and expertise in SOLIDWORKS software.

Bertha Perkins Frothingham Award for Excellence

- Demonstration for outstanding affinity for the written and printed word in 2018 presented by Friends of the Windsor Public Library.