Thomas Howell

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EDUCATION

- **Duke University**   Durham, NC
  Bachelor of Science and Engineering in Mechanical Engineering   *Expected May 2022*
  - GPA: 3.97/4.00 (Dean's List with Distinction)

EXPERIENCE

- **Duke AME Statistical Machine Learning Lab**   Durham, NC
  Intern   *May 2020 - Present*
  - Applied and contributed to machine learning algorithms capable of matching for causal inference
  - Developed a website from scratch to document the algorithms and their usage

- **Duke Aviation Engineering Research Opportunities**   Durham, NC
  Structures Subteam   *August 2019 - Present*
  - Constructed a rocket for the Spaceport America Cup in New Mexico
  - Modeled components in CAD and fabricated parts from carbon fiber

- **Duke Engineering Education**   Durham, NC
  Teacher's Assistant   *August 2019 - December 2019*
  - Lead student engineering teams through technical design projects and provided prototyping support
  - Taught CAD modeling, Arduino programming and wiring, and proper hand tool usage

- **Garcia Summer Research Program at Stony Brook University**   Stony Brook, NY
  Student Researcher   *July 2017 - August 2017*
  - Researched thermal conductivity and composite materials in FDM printing under Dr. Miriam Rafailovich
  - Documented research in a 12-page technical paper for submission to the Siemens Competition
  - Presented at the Materials Research Society 2017 Fall Meeting & Exhibit poster session in Boston, MA

PROJECTS

- **Autonomous Lawn Care Robot** *(in progress)*
  - Designed a 3D model for a completely autonomous lawn mower robot in a team of 8 students
  - Programmed Arduino to rely on GPS for robot path generation and motor control

- **Motorized Kayak Hydrofoil**
  - Designed and 3D modeled a kayak hydrofoil in SolidWorks in a team of 4 students
  - Studied aerodynamic and aviation principles to inform design choices
  - Implemented radio control for electrically driven hydrofoil motion

- **Automatic Mast Sorting Device**
  - Designed and prototyped automatic sorting device for Duke Forest in a team of 5 students
  - Machined aluminum and polycarbonate to construct final device
  - Presented project at the Duke Engineering First-Year Design Poster Showcase

AWARDS AND CERTIFICATES

- **National Merit Finalist**: Distinguished performance on the PSAT and SAT

- **National AP Scholar**: Earned a 5 on eight AP exams

- **RIT Statistical Data Analysis Competition**: Earned bronze medal with a 14-page technical data analysis

SKILLS

- SolidWorks, Python, MATLAB, R, Git, Arduino, LaTeX, Web Development, Machining