MICHAEL AKSEN

Contact

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Education

Master of Engineering in Mechanical Engineering
Rensselaer Polytechnic Institute
Troy, NY (2022- 2023)

Bachelor of Science in Mechanical Engineering
Rensselaer Polytechnic Institute
Troy, NY (2018 - 2022)

Academy of Science & Technology
Bergen County Academies
Hackensack, NJ (2014-2018)

Certifications

FE Mechanical Certification
Issued by: NCEES

STK Level I Certification
Issued by: Ansys

CSWA-Mechanical Design Certification
Issued by: SolidWorks

Awards and Honors

RPI Inventors Studio Startup Founders Award Recipient
RPI Inventors Studio (2023)

Gene Haas Manufacturing Award Recipient
Allendale HFO (2021)

RPI Elevator Pitch Competition – 3rd Place
RPI (2020)

BCA Research Expo First Place in Engineering Award
BCA (2018)

Professional Summary

Results-driven Mechanical Engineer with hands-on expertise in manufacturing, controls, and programming. Skilled in CAD design, FEA analysis, and integrating technologies such as PLCs, Robotics, and 3D printing to accomplish deliverables. Experienced in leading teams, prototyping, and technical documentation. Passionate about innovation and delivering effective engineering solutions.

Experience

Associate Mechanical Engineer • United Aircraft Technologies, Inc.
Pittsfield, MA
October 2023 – October 2024

- Optimized enterprise CAD workflows by implementing advanced SolidWorks tools and documenting best practices for exploded views, configurations, and interference analysis.
- Researched and implemented nylon as a cost-effective 3D printing material, reducing prototyping costs by 47%
- Performed computational simulations in Ansys Mechanical to improve wire harness clamp design and created new material model for 3D-printing material in Ansys, enhancing simulation accuracy for future projects.
- Developed Army Technical Manual Drawings & BoMs

Graduate Manufacturing Researcher • RPI Smart Manufacturing Innovation Center
Amsterdam, NY
May 2022 – May 2023

- Refurbished a 40-year-old automated industrial bandsaw by replacing the relay logic with a PLC and ladder logic to reduce downtime and create an open-source architecture
- Integrated Modbus/OPC-UA industrial communications framework to collect and contextualize bandsaw data

Manufacturing Engineering Intern • The Factory Amsterdam
Amsterdam, NY
June 2021 – August 2021

- Designed a CNC tooling fixture in SolidWorks to machine components for nerf guns, optimizing precision and production efficiency.

Vehicle Engineering Intern • United States Postal Service
Merrifield, VA
January 2020 – April 2020

- Designed and MIG-welded a steel assembly to test the performance of an autonomous delivery vehicle. Created a 3D model of the assembly in NX.

Software Engineering Intern • BrightLogic
Midland Park, NJ
September 2017 – July 2018

- Developed a log-collection back-end interface for a mobile app using JavaScript and C# to systematically send bugs from local versions of the app to a centralized server for classification and revision

Key Skills

Engineering Skills:

- CAD Design
- Finite Element Analysis (FEA)
- PLC Programming
- Lean Manufacturing
- Design for Manufacturing (DFM)
- Hand-Calculations
- PID Control Systems

Software:

- Simulink, SolidWorks, Ansys Mechanical, STK, Siemens NX, NX Nastran Mechanical/Thermal Solver, LabVIEW, ProModel, Minitab, Mastercam, Arduino, MS Excel, AutoCAD, VKS, Modbus

Hardware:

- 3D Printing, MIG Welding, CNC/Manual Machining, Soldering, PLCs, Multimeters

Programming:

- Python, Java, SQL, HTML, GIT, Arduino C, MATLAB, Robots

Technical Documentation:

- Technical Data Packages
- Value-Stream Mapping
- Manufacturing Work Instructions
- Mechanical Drawings w/ GD&T
- Gantt Charts

Soft Skills:

- Leadership and Team Management
- Problem-Solving
- Analytical Thinking
- Cross-Functional Collaboration
- Independent Learning

Affiliations

RPI Habitat for Humanity Club
President (2020 – 2023)

Order of the Engineer
Member

Society of Manufacturing Engineers
Member

Notable Engineering Projects

300 Toy Airplanes — Manufacturing Processes and Systems Lab I & II, RPI

- Co-led a 12-member team to fabricate 300 toy airplanes utilizing diverse industrial processes.
- Designed and fabricated a forming die to produce steel wheel wires, ensuring adherence to DFM principles.
- Programmed a pick-and-place robot achieving 95% assembly success for injection-molded wings.

Atomic Orbital Kinematics — Spaceflight Mechanics, RPI

- Modeled hydrogen atomic orbital kinematics using the Bohr atomic model and 2-body problem dynamics.
- Simulated results in MATLAB with ode45, achieving 91% accuracy.

Robotic Manipulator — Robotics I, RPI

- Developed Forward and Inverse Kinematics algorithms for a 6-DOF robotic arm using Python and MATLAB.
- Demonstrated path planning, PID control (<0.5% steady-state error), and obstacle avoidance in Python.

Mini-Segway Controller — Mechatronics, RPI

- Developed an electromechanical control system to balance a mini-Segway for over 2 hours using a PID controller implemented in MATLAB and Simulink.

iPhone Cooling System — Advanced Heat Transfer, RPI

- Designed and analytically calculated the effectiveness of a finned heat sink to cool a mobile phone
- Thermal modelling of a flow loop to cool a phone and evaluated the control system with a numerical ODE solver
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Smart Manufacturing Data Analysis — Multidisciplinary Capstone Design, RPI

- Developed a predictive differential model for tool wear on a CNC lathe using the Taylor tool wear model and collected data
- Led team of 8 students in developing labs to explore smart manufacturing concepts in a classroom environment: including communicating with advisors, leading meetings, and managing team deliverables