Kevin Chen

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EDUCATION

Northwestern University | Evanston, IL September 2020 - June 2024
BS: Mechanical Engineering, Minor in Data Science and Environmental Policy

- GPA: 3.81 / 4.00
- Relevant Coursework: Static & Dynamic Systems, Fluid Mechanics, Thermodynamics, Design & Manufacturing, Material Mechanics, Electronics Design, Heat Transfer, Propulsion Systems, Control Systems, Differential Equations, Multivariable Calculus, Linear Algebra

TECHNICAL SKILLS

- Programming (MATLAB, Python, CSS, HTML) | CAD & FEA (SOLIDWORKS, NX, Creo, Abaqus)
- Oscilloscopes and breadboarding (nScope) | Confocal, SEM, and high-speed imaging (ImageJ, Phantom Camera Control)
- Mill and lathe (Conventional & CNC Machining) | Manufacturing (Additive, Forging, Casting, Forming, Injection molding)

EXPERIENCE

NASA Langley Research Center Structural Dynamics | Hampton, VA June 2022 - September 2022
Structural Dynamics Intern

- Conducted flexural testing of Advanced Composite Solar Sail System (ACS3) composite booms and cube-sat assembly to insure stability of flight article for March launch on a Rocket Lab Electron vehicle
- Designed crushable hybrid composite-polymer energy absorbers in Creo Parametric and used additive manufacturing techniques to improve occupant safety by 23% during crashes within an experimental VTOL aircraft
- Diagnosed and repaired material extrusion, PBF, and SLA 3D printers (Prusa, FormLabs, Raise3D, Ultimaker, Zortrax) in rapid prototyping lab to support ACS3 evaluation and Mars Sample Return gantry testing

Northwestern University Bazant Materials Science Laboratory | Evanston, IL May 2021 - June 2022
Undergraduate Researcher

- Performed fracture analysis on composites, shale, and concrete to determine material properties for manufacturers
- Developed biaxial tension-compression model through SOLIDWORKS and stress analysis with Abaqus FEA
- Gained conventional & CNC machining certification using mill, lathe, drop saw, diamond-edged band saw, waterjet, etc.

Ann & Robert H. Lurie Children's Hospital | Chicago, IL March 2021 - Present
Lurie Inventor

- Created the X-Strap, an aluminum & foam-celled band to restraint infants during emergency medical transportation
- Employed SOLIDWORKS sheet metal to inform forming and injection molding of restraint and buckle prototype
- Delivered a final product of Northwestern's DTC certificate, sole team in 2021 to be selected for continued evaluation
- Finalizing a transfer of rights to Lurie's Children's Hospital for potential patenting

NUSolar & Northwestern Formula Racing | Evanston, IL September 2020 - June 2022
Chassis Team Member

- Assisted manufacturing of Solar Car 7 and contributed to development of Solar Car 8 floorboard through Siemens NX modeling and Abaqus FEA as an independent project with NUSolar leadership
- Specialized in composite layups, waterjet cutting, and laser cutting for current Formula vehicle pedalbox

LEADERSHIP

VEX Robotics Team, 7701X | *Lead Designer and Builder* August 2017 - May 2020

- 2019 & 2020 World Championship Divisional 1st place and finalists, 2019 1st place World Driver Skills Ranking, VEX Robotics 2020 National Signature Event Tournament Champion, 8x Regional Tournament Champions
- Constructed mechanisms (ratcheting rack & pinion launcher, differential 1:3 drivetrain), improved sensor suite (ultrasonic, IMU, shaft-encoder), 3D-printed custom gears and joints for lift and drive system, and upgraded pneumatics systems
- Applied PID controllers as well as odometry for autonomous motion and position tracking of robot, enabling a nearly flawless in-game autonomous route and lead 7701X to become the highest scoring team in the world during 2020

PROJECTS

L1 High Powered Rocketry Certification | *NUStars* December 2022 - Present

- Assembled LOC Precision PK-56 model rocket (F20-4W motor) to gain L1 HPR certification during 2023 winter quarter

Anvil Arrow RC Plane Replica | *Personal Project* October 2022 - Present

- Designed original RC model of Star Citizen's Anvil Arrow in Autodesk Inventor utilizing a 830W Avian brushless DC motor
- Utilized GD&T to dimension foam-board components and dual control surfaces, driven by two 9g servo motors