Abhigyaan Deep

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Education

Iowa State University May 2027

Bachelor of Engineering, Iowa State University Ames, Iowa

- Major: Aerospace Engineering GPA: 3.83
- Minor: Cyber-Physical Systems (CPS)

Research Experience

OpenUAS - Laboratory For Temporal Logic 2025 - Present

Undergraduate Researcher, Avionics, Embedded Systems, and Software Integration

- Designed and integrated FPGA-based (Field Programmable Gate Array) avionic systems for a reconfigurable, open-source Unmanned Aerial System (UAS).
- Implemented predictive system health management and runtime monitoring algorithms.
- Maximized commercial-off-the-shelf (COTS) parts for repeatability.
- Documented health and flight characteristics in LaTeX for a formal research paper on IEEE Xplore and retained code version history through Git & GitHub.

Skills

Software: SolidWorks, OnShape, Ansys Fluids, Git/GitHub

Languages: C, C++, C#, Go, Rust, Python, MATLAB, R, Java, JavaScript, TypeScript

Other: Systems Integration, Computer Vision, Acrylic Painting, Engineering Economics

Projects

Zephron 2025 - Present

Club, Coandă and Ground Effect Drone, Fuzzy and PID Controls, Design and Manufacturing

- Organized team to form preliminary designs and budgets to acquire funding.
- Created PID and AI-trained capable hardware in a tightly integrated hull.
- Performed Ansys CFD and confirmed results on 3D-printed prototype.

The Jet Engine Team 2024 - Present

Club, Combustion Chamber Design, Optimization, Manufacturing, and Testing

- Designed, did CFD, and optimized combustion chamber for sea-level conditions.
- Manufactured with rolled stainless steel and aluminum for the production body.
- Tested integration and pressure tested with compressor using 3D-printed prototypes.

BlitzKit 2023 - Present

Hobby, Development, Production, Maintenance, Real-Time Heuristic Simulation

- Built a real-time visual armor simulation for 700+ tanks from WWI to the Cold War.
- Developed a GLSL-based OpenGL renderer to model shell penetration behavior.
- Simulated kinetic, explosive, and HEAT shell interactions with spaced and primary armor.
- Blended aerospace principles of fluid dynamics with material deformation.