Ankit Khandelwal

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EDUCATION

CARNEGIE MELLON UNIVERSITY
Expected Graduation: May 2025
GPA: 4.0/4.0

THOMAS JEFFERSON HS FOR SCI/TECH
GPA: 4.47/4.0
SAT: 1600

COURSEWORK

COLLEGE COURSEWORK
33-141: Physics I
21-127: Concepts of Mathematics
18-100: Intro to Electrical & Computer Engineering
76-101: Interpretation Argument

HS COURSEWORK
Quantum Mechanics
Multivariable Calculus
AP Physics C: Mechanics + E&M
Artificial Intelligence I & II
AP Computer Science A
Robotics I & II
Analog/Digital Electronics

SKILLS

PROGRAMMING
Java - **(4 Years)**
Python - **(3 Years)**
C++ - **(1 Year)**
Github - **(2 Years)**
AI/Neural Networks - **(1 Year)**
OpenCV - **(6 months)**
Matlab - **(1 Year)**

ELECTRONICS
KiCAD, Eagle - **(1 Year)**
Ardupilot - **(1 Year)**
Arduino/Teensy - **(3 Years)**
Raspberry Pi - **(2 Years)**
Analog Circuits • Digital Circuits
FPGAs • Verilog Programming

MECHANICAL
Fusion 360 **(CAD)** - **(3 Years)**
Ansys Fluent **(CFD)** - **(6 Months)**
3D-Printing • Laser Cutter
CNC Mill • Woodworking

CLUBS

TJ NANOSATELLITE TEAM | Oct 2017 - Jun 2021
Avionics Lead
- Managed team of four to devise power/control systems consisting of Electrical System, UHF/VHF radio modules on communications satellite
- Developed custom-PCB to support flight computer, GPS, and EEPROM
- Optimized power draw of onboard devices via power budget management

PROJECT CAELUS - ROCKETRY TEAM | Nov 2018 - Jun 2021
Avionics Lead + Propulsion Engineer
- Managed team of six to construct sensor and valve suite for engine control
- Designed custom-PCB to host microcontrollers, groundstation override
- Collaborated with Propulsion team to manufacture fuel injector, test stand

TJ UNMANNED AERIAL VEHICLES TEAM | Oct 2018 - Jun 2021
Avionics Lead + Mechanical Engineer
- Primary electronics integrator for development of autonomous UAV for collegiate-level AUVSI Student Unmanned Aerial Systems competition
- Developed communication system based on omnidirectional, 2.4 GHz radio
- 3D-modeled and built custom airframe, wings, and payload drop mechanism

INTERNSHIPS

GEORGE MASON PATRIOT PILOTS | Jun 2020 - Aug 2020
Swarm Blimp Research Intern
- Worked alongside research students on autonomous swarm of four blimps
- Created Neural Network using TensorFlow for swarm obstacle avoidance
- Worked with MaixPy platform, specifically optimized for Machine Learning

PHONE2ACTION | Jul 2019 – Aug 2019
Software Intern
- Developed C# code to control virtual reality experience in Unity Engine
- Used Node.js to communicate with Phone2Action API, IBM Text-to-Speech
- 3D-modeled VR environment alongside Phone2Action Graphics Team
- Improved public-speaking skills through weekly company-wide presentations

PERSONAL PROJECTS

VERTICAL TAKEOFF & LANDING ROCKET | Aug 2020 – Present
- Developing propeller-powered rocket that can autonomously hover and land
- Designed, built, and tested gimbaled nozzle for thrust vector control
- Testing Kalman filter in C++ to reduce noise in sensor measurements
- Modeling and auto-tuning PID-feedback control systems in Simulink

DIY QUADCOPTER | Nov 2018 – Jan 2020
- Designed and tested hardware based on Matek-F405 FC, FS-I6X TX/RX
- Configured flight hardware using BetaFlight, an open-source drone firmware
- Logged 50+ flight hours on drone simulator, 25+ hours drone pilot hours