

# Ethan Koran

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## EDUCATION

- University of Notre Dame** | Notre Dame, IN May 2026  
*Bachelor of Science*, Major: Computer Science | Minor: Engineering Corporate Practice GPA: 3.88
- ND Global Gateway – London** | London, England May 2023 – July 2023  
*Engineering Summer Study Abroad*
- Navigated and assimilated cultural differences into daily life while balancing two engineering courses in a foreign country

## EXPERIENCE

- IrishSat Computing Team** | University of Notre Dame September 2024 – Present  
*Attitude Determination and Controls (ADCS) Team*
- Writing and implementing C programs as a team to detect, adjust, and predict the CubeSat's orientation using reaction wheels and magnetic torquers for maximum stability while in orbit
  - Facilitating effective communication between club subgroups to meet project deadlines and integrate work cohesively
- Sports Biomechanics Research Lab** | University of Notre Dame April 2024 – Present
- Utilizing motion capture technology to analyze the movement of NCAA athletes in order to improve their form on common motions in their sport and to prevent possible injury resulting from poor technique or overuse
  - Spearheading the automation of the analysis of data taken from the swings of 13 Notre Dame softball players, manipulating large datasets consisting of thousands of positional measurements using Python libraries and GCP APIs
- Coney Island Inc.** | Cincinnati, OH May 2020 – August 2023  
*Customer Service Representative and Pool Cashier*
- Aided 200+ customers over the phone and in person daily, answering customer inquiries pertaining to park operations
  - Handled and accurately accounted for over \$2000 per shift selling daily tickets, season passes, and park merchandise

## TECHNICAL PROJECTS AND RELATED COURSEWORK

- Publisher/Subscriber Server Message Queue** October 2024
- Implemented a pub/sub system client library in C that enables concurrent message delivery and retrieval via a RESTful API server, facilitating real-time communication across multiple devices through external C libraries and POSIX threads
  - Designed a subscription-based chat room user interface with a partner that supports direct messaging across machines
- Process Queue Shell** September 2024
- Built a multi-core process queue using data structures and low-level system calls in C that implements several scheduling policies to simulate a scheduler's role in managing and efficiently executing incoming jobs on multiple CPU cores
- Miles: Web Crawler** March 2024
- Developed a Python-based web crawler using functional programming to extract and concurrently download media files (JPG, PNG, PDF, MP3) by leveraging multiple CPU cores and a process pool for parallel execution
- Wine Quality Machine Learning Model** May 2023 – June 2023
- Trained a logistic regression ML model that predicted wine quality using Python's Pandas and Scikit-Learn libraries
  - Minimized loss and achieved an accuracy of 98% on the final model utilizing L1 regularization and categorical classification techniques. Used model to present findings on the most important properties in assessing wine quality
- Mortality Rate Analysis Matlab App** February 2023 – April 2023
- Analyzed and visualized a set of over 100,000 data points on worldwide 1990-2019 mortality rate statistics
  - Developed an application with interactive user interface to explore trends and formally present findings with a partner

## LEADERSHIP AND ACTIVITIES

- Family Volunteer Camp** | University of Notre Dame July 2024  
*Student Program Leader*
- Led 75+ Notre Dame alumni families and partnered with over 25 local nonprofit organizations to spearhead diverse service projects to better the South Bend community
- Computer Science (CS) for Good** | DePaul Academy of South Bend September 2023 – May 2024
- Taught the basics of CS and Python to 25+ High-School boys with history in the juvenile justice system, motivating curiosity in a new field of study and facilitating talks about possible future career paths in full-stack development
- Boy Scouts of America** | Cincinnati, OH March 2015 – September 2021  
*Eagle Scout*
- Managed an 8-month Eagle Scout service project that designed, constructed, and installed outdoor Stations of the Cross at the local Comboni Missionaries Mission Center, delegating tasks for 30+ volunteers on the day of installation

## TECHNICAL AND LANGUAGE SKILLS

**Technical:** Python, C, Java, HTML, CSS, Assembly, Github, Unix/Linux, Python Libraries (Pandas, TensorFlow), GDB debugger, Google Cloud Platform, Matlab, Microsoft Excel, Visual Studio Code, Microsoft Office (PowerPoint, Word, Teams)