MARIANO FRANCISCO RODRIGUEZ

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EDUCATION

- **University of Illinois at Urbana-Champaign** *August 2024 - Expected December 2027*
  Bachelor of Science Urbana, Illinois
  - GPA: 4.00/4.00
- **Mundelein Consolidated High School** *August 2020 - May 2024*
  Secondary Education Mundelein, Illinois
  - GPA: 3.95/4.00

SKILLS

- **Programming Languages:** Rust, Python, Java, Kotlin, SQL
- **Web Technologies:** Django, Flask, REST, WebSockets, HTML, CSS
- **DevOps & Version Control:** Git, GitHub Actions, Cargo, Bash
- **Other Tools & Technologies:** Linux, UART, PWM, I2C, SPI, Onshape, PostgreSQL, SQLite, Heroku, Shuttle

EXPERIENCE

- **Mundelein High School** *June 2023 - July 2023*
  Camp Counselor Mundelein, Illinois
  - Developed weekly lessons teaching middle schoolers the Python programming language
  - Implemented the Socratic method, enhancing learning by adding interactivity via weekly projects and dialogues as to why certain code fails/works
- **Discovery Partners Institute** *June 2022 - August 2022*
  Intern Chicago, Illinois
  - Developed mobile app as part of capstone project, increasing knowledge of Swift ecosystem
  - Implemented SQLite database to allow for simple persistence of data

PROJECTS

- **Illinois Space Society: Solid Propulsion Testing Rig** *August 2024 - Present*
  Tools: Rust, SPI, Raspberry Pi Zero 2 W, Git, Python
  - Improved GitOps for CAD and code contributions
  - Creating Rust data collection binary for the Raspberry Pi Zero 2 W, ensuring uncompromising time-series data collection of key metrics for rocket motor test fires
  - Developing data pipeline for easy integration with existing analysis processes
  - Making use of SPI protocol to unify various peripheral sensors under one common interface
  - Wrote custom device tree for Raspberry Pi Linux kernel paving the way for various arbitrary SPI chip select pins
- **Remote Control Plane: Scratch building a Remote Control Plane** *July 2024 - Present*
  Tools: Rust, Raspberry Pi 4, Linux, Git, PWM, UART, Onshape [Crates.io]
  - Developed Rust library for parsing FlySky IBUS serial protocol, achieving ease of use for said protocol, then published to Crates.io
  - Implemented multi-threaded controller architecture using UART to receive packets from receiver and then outputting PWM signals based on said packets.
  - Implementing support for stabilization using MPU6050 gyroscope/accelerometer
  - Creating mechanical structure for plane in Onshape