Sunny Patel

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EDUCATION

- **University of Illinois Urbana-Champaign** — Champaign, IL
  Bachelor of Engineering Physics, specialization in Computational Physics — *Aug 2018 – May 2022*

EXPERIENCE

- **Belcan** — Rockford, IL
  Software Engineer — *Jul 2023 – Present*
  - Developed Python and C++ scripts in a Linux environment for airplane equipment testing at Collins Aerospace
  - Implemented a precision timing algorithm that calculates time delay between two synchronized machines giving an accurate assessment of the state of a computer cluster as well as warning when the system is out of sync.
  - Enhanced database functionality by 33% in software/hardware integration scripts by extending hostagent utilities, streamlining development and debugging for future projects.
  - Led the preparation and release of updated software tools for new tests, including modifying existing scripts to meet new requirements, writing validation scripts, and collaborating with test engineers to ensure quick iteration and deployment of solutions.
  - Refined the virtual golden image for developer environments, ensuring compliance with package and security requirements, resulting in a 3-hour reduction in setup time per deployment.

- **USGS Illinois Water Science Center** — Champaign, IL
  Data Analyst/IT Programmer Intern — *Aug 2021 – Aug 2022*
  - Updated and maintained Python code used for water-resources analysis and data delivery using SciPy and Pandas
  - Constructed a user interface using Microsoft Power Apps to modernize the logging of water research equipment
  - Acted as a tech liaison to onboard and train a new team of employees
  - Set up machines and docking stations required for the transition back to in-person work

- **Programming for Engineers and Scientists** — Champaign, IL
  Course Assistant — *Aug 2021 – May 2022*
  - Supported a course professor in teaching engineering students Python and MATLAB
  - Led class of 15+ students to work through exercises to challenge programming concepts explored during lectures
  - Hosted office hours in conjunction to biweekly classes to assist students in resolving programming blocks

PROJECTS

- **Ecommerce Website** — Nov 2022 – Jul 2023
  - Developed a single page application that allows users to make an account and order products online.
  - Included a Relational database of 6 tables stored in PostgreSQL
  - Created the frontend in React.js using the React-Bootstrap UI library
  - Handled the backend using Django Rest Frameworks with CRUD functionalities

- **RATS (Roomba Acoustical Tracking System)** — Aug 2021 – Dec 2021
  - Lead a project exploring the possibilities of using sound waves to triangulate a moving Roomba.
  - Engineered a circuit board to support components specific to our project, including an Adalogger, microphone, GPS, BME 680, Radio Transmitter, and a real time clock
  - Created the frontend in React.js using the React-Bootstrap UI library
  - Programmed Arduino and Python scripts computing a Fourier Transform of incoming sound waves to be used for triangulation

- **Potential Majors App** — Feb 2021 – May 2021
  - Developed a database of required classes for different majors and minors available at UIUC on Google Cloud Platform to ensure access between multiple machines
  - Collaborated in a group of four, where I oversaw the back-end development using Django; we leveraged MySQL queries for students to search for majors they are on progress to complete
  - Implemented the front-end using React.js and Bootstrap

SKILLS

- **Languages**: C++, Python, JavaScript, SQL, Java, HTML, C#

- **Technologies**: Makefile, Git, Linux, Docker, React, Redux, Azure, AWS