Ranjan Behl

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Education

Purdue University **West Lafayette, IN**
Bachelor of Science in Computer Engineering GPA: 3.42/4.0 *Graduated: May 2022*

- Graduate Coursework: Computer Vision for Embedded Systems, Compiler and Translation Systems
- Undergraduate Coursework: Data Structures and Algorithms, Computer Security, Embedded Systems, Operating Systems

Employment

Union Pacific **Omaha, NE**
Software Engineer Intern *May 2021 - January 2022*

- Worked within an agile team to develop a MVP to showcase that train crossings can be remotely tracked.
- Developed multiple REST APIs using Spring Boot.
- Designed database schemas for the REST APIs using MapForce and set up an Oracle coherence cache.
- Conducted thorough testing of the REST APIs using jUnit5, Mockito and PIT mutation testing to achieve 80 percent test coverage.
- Addressed regular production bugs and improvements in existing Java services and Angular services leveraging Jira to prioritize requirements, and utilizing Jenkins pipelines to rapidly iterate.

Purdue University **West Lafayette, IN**
Student Researcher *August 2020 - Present*

- Used technologies such as OpenCV, PyTorch, ROS, PX4, and Gazebo to investigate how to track a ground target with a UAS (unmanned aerial system).
- Ran performance benchmarks of various SSDs (single-shot detectors) on an Intel NUC connected to an Intel D435i camera mounted on UAV.
- The performance was found to be insufficient, so the chosen SSD (MobileNetSSD) was ported to a VPU (Intel Neural Compute Stick 2).
- created a customized dataset of ground targets in the Pascal VOC format.

Purdue University **West Lafayette, IN**
Teaching Assistant *August 2020 - May 2021*

- Provided guidance and insight to students in lab sections, held weekly office hours, proctored exams, and graded assignments.
- Taught students micro-controller instruction set and assembly language programming techniques, bus timing analysis, I/O, interrupt handling, ATD, SPI, SCI, and embedded system design considerations.

Projects

Nutri-Vision *November 2021 - December 2021*

- An embedded application that is able to take a given image of a fruit or vegetable and display its nutritional information.
- Developed for the Raspberry Pi 4 using ResNet18 + PyTorch, trained using the fruit-262 dataset, with nutrition information delivered via the Edamam API.

MicroC Compiler *August 2021 - December 2021*

- The Compiler was written in Java 8 for the MicroC language.
- Included features consist of control structures, functions, pointers, type checking and automatic type conversions.
- Tested on RISC-V architecture.

RogueLike Game *August 2020 - December 2020*

- A rogue-like multi-threaded terminal game written in C++ leveraging the Curses library.
- Game level information provided via XML files.
- XML parsing done using Apache Xerces.

WIFICoin *January 2020 - January 2020*

- A WiFi hot-spot sharing web and mobile application based on the concept of purchasing/earning and then redeeming WiFi coins to gain access to nearby WiFi.
- Developed using Android studios, PHP, MySQL, and Google Maps API.
- Built for the BoilerMakeVII Hackathon.

Technical Skills

- Languages: Java, C/C++, Python, JavaScript/TypeScript/HTML/CSS, PHP
- Frameworks and Libraries: Spring, Angular, React, OpenCV, PyTorch
- Databases: MySQL, PostgreSQL, Oracle, MongoDB
- Tools: Git, Linux, Docker, Maven, Gradle, Jenkins, Jira, ROS, Gazebo