

Yuvraj Chahal

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EDUCATION

University of Illinois at Urbana-Champaign (UIUC)

B.S. in Computer Science + Economics

Champaign, Illinois

Expected Graduation, May 2026

- **GPA:** 3.80/4.00, *Dean's List*
- **Related Coursework:** Data Structures & Algorithms, Applied Machine Learning, Algorithms & Models of Computation, Computer Systems, Database Systems, Discrete Math, Prob. & Statistics for CS, Linear Algebra

EXPERIENCE

Zolon Tech, Inc.

Reston, VA

Software Engineering Intern

June 2024 – Aug 2024

- Developed a **machine learning solution** in an **agile** environment, automating onboarding for the Administration for Children & Families by utilizing **optical character recognition**, improving document digitization efficiency by **~30%**.
- Engineered Python **AWS Lambda functions** using Amazon **Textract** for OCR, storing **JSON** data in **Amazon S3**. Developed **REST APIs** to integrate with ACF's **ServiceNow** case management supporting **1,000+** ACF employees.
- Implemented a **facial recognition system** to detect incorrect previous case closeouts using a **Siamese neural network** and **FaceNet**, achieving an accuracy of **85%** through advanced **data augmentation and feature extraction** techniques.

University of Illinois at Urbana-Champaign (UIUC)

Champaign, IL

Computer Science Course Assistant

Jan 2023 – Dec 2023

- Guided 100+ students in debugging, testing, and understanding complex object-oriented concepts during office hours
- Personalized support to each student, enhancing comprehension & performance in homework, projects, and quizzes.

Sunrise Valley Dental

Reston, VA

Office Assistant/Intern

May 2023 – Aug 2023

- Used experience in web development to create a form on the company's website allowing patients to request appointments online instead of only over the phone. Increased productivity of existing staff by 20%.

PROJECTS

Neural Network from Scratch

- Designed a **neural network** from scratch using **PyTorch** to play Pac-Man
- Developed a **deep convolutional Q-learning agent** with multiple **convolutional layers**, **batch normalization**, and **fully connected layers**, leveraging experience replay and target networks for stable and efficient learning.
- Fine-tuned hyperparameters such as learning rate, discount factor, and epsilon decay, employing **Adam optimizer** and **mean squared error loss** for optimal Q-value estimation.

HackIllinois 2024 Hardware Hack

- Engineered a robot using Raspberry Pi winning **2nd place** at HackIllinois, the **largest hackathon in the Midwest**.
- Designed and implemented **autonomous navigation** logic in Python, incorporating **state machine principles** for dynamic behavior adjustment in real-world conditions.
- Utilized **OpenCV** for **real-time image processing**, enabling the robot to follow paths and detect/avoid obstacles using **color filtering and contour detection** techniques.

TwitterNLP

- Developed a Python-based **sentiment analysis tool** to scrape tweets from certain users, search terms, or hashtags.
- Utilized the advanced RoBERTa model, an evolution of Google's BERT, for **natural language processing**, accurately categorizing tweets into positive, neutral, and negative sentiments.
- Implemented **data visualization** using **Plotly**, showcasing sentiment trends over time and enabling detailed analysis through user-interactive features.

Illini Rideshare

- Created a web application using **React.js**, **Node.js**, and **HTML/CSS/JS** for university ridesharing.
- Integrated **Microsoft's Authentication Library** for secure access, restricting sign-in to University of Illinois students.

SKILLS

Programming: Java, Python, JavaScript, HTML/CSS, SQL, Node.js, React.js, C++, C, R

Tools: Git, Scikit-learn (sklearn), PyTorch, OpenCV, Pandas, NumPy, Matplotlib, AWS, Docker, Linux, Flask, Android Studio, Eclipse, Jupyter