

Rikhil Chilka

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SUMMARY

CS student with a strong analytical and problem-solving foundation, interested in learning how business processes, people, and organizational systems work together within a large enterprise. Eager to apply a technical perspective while developing a deeper understanding of business operations and people strategy.

EDUCATION

University of North Carolina at Chapel Hill

B.S. Computer Science | B.S. Applied Math | Minor: Linguistics | GPA: 3.9/4.0

May 2029

EXPERIENCE

NUUBI

<https://nuubi.app>

SWE Intern (Security + Fullstack)

Aug 2023 – Aug 2024

- Conducted penetration testing on a React, Express.js, and PostgreSQL chat application with 200+ beta users to identify broken access control vulnerabilities
- Refactored API authorization logic to enforce strict resource access policies, mitigating IDOR vulnerabilities across chat and forum features
- Collaborated with the development team to patch security holes and ship UI and chat feature updates

University of North Carolina at Charlotte

Charlotte, NC

Lab Assistant

Aug 2023 – Aug 2025

- Curated and annotated large-scale fluorescence microscopy datasets to train a neural network for mitochondrial recognition, achieving a 10% improvement in model accuracy
- Executed drug treatment assays and integrated raw neural imaging data into custom training pipelines to validate computer vision model performance

YETI Robotics

<https://scout.yetirobotics.org>

Fullstack Engineer and Lead Robot Programmer

Aug 2023 – Aug 2025

- Engineered a Next.js/TypeScript/PostgreSQL robotics scouting platform on DigitalOcean, used by 100+ FRC teams across North Carolina
- Programmed arm, shooter, and elevator mechanisms in Java, integrating real-time PhotonVision computer vision for automated target tracking and shot adjustments

PhotonVision

<https://photonvision.org>

Open Source Developer / ML Engineer

Aug 2024 - Present

- Extended the core computer vision engine by implementing C++ and Java tensor post-processing and quantization logic to support YOLOv8 and v11 architectures, enabling real-time detection for thousands of teams on edge hardware including Orange/Rubik/Raspberry Pi
- Developed the official community Jupyter Notebook toolchain to automate model conversion and quantization verification for platforms like Rockchip/QC, streamlining the deployment workflow for users
- Curated datasets and trained custom YOLO models utilized by 1,000+ FRC robotics teams; administering a self-hosted CVAT instance to manage community data annotation from over 7+ teams

RAM Robotics Club (UNC)

Autonomy / Perception Engineer

Aug 2025 – Present

- Developed perception systems for an autonomous delivery robot navigating dynamic environments using ROS 2, Python, C++, and OpenCV
- Applied the Segment Anything Model (SAM) for semantic segmentation of walkways and sidewalks, and paired YOLO object detection with LiDAR for obstacle avoidance and spatial awareness
- Used Foxglove Studio for real-time sensor data streaming, topic inspection, and telemetry monitoring during field testing

Kepha Design

<https://kepha.design>

Web Developer

Feb 2026 – Present

- Translated agency-provided designs into responsive, production-ready websites using React and Tailwind CSS, with Astro for static builds; shipped 2 client sites (3rd in progress) deployed on Cloudflare Pages
- Integrated contact forms via email APIs to streamline client lead capture
- Implemented FullStory behavioral analytics to track conversion rates, surface user friction points, and support usability testing

PROJECTS

AI UNC – Multi-Modal Health & Wellness Prediction System

- Built a multi-modal health and wellness trend prediction and recommendation system combining Fitbit telemetry with patient-reported wellness data including heart rate, weight, exercise, mood, sleep, stress, and soreness
- Designed LSTM models in PyTorch for time-series forecasting, paired with XGBoost and Analytic Hierarchy Process (AHP) algorithms to score, rank, and predict future wellness trends
- Achieved a 12% RMSE on an aggregated patient wellness score using PyTorch, Scikit-learn, Pandas, NumPy, and Matplotlib

NASA Space Apps – North Carolina Competitor

- Built an ML + DSP pipeline with ObsPy and Tensorflow to distinguish seismic quakes from noise in Martian and lunar datasets
- Created a Flask web app for data visualization and querying

Technology Student Association (TSA) – Lead Web Developer & State Finalist

- Designed and developed multiple award-winning web applications, consistently securing Top 3 placements at statewide competitions against 15+ schools
- Built "EcoHome Solutions," an environmental initiative finder using Next.js and MongoDB, integrating the Google Maps API to engineer a geolocation-based search engine
- Developed "Aerolune" and "Taj" using PHP/Next.js, MySQL, and TailwindCSS to demonstrate versatility across legacy and modern web stacks
- Programmed "Dungeon Adventure," a 2D game using Unity and C# featuring complex object-oriented state management
- Developed a mobile app called "Farmed" with Kotlin Compose and Spring Boot Backend

Independent Software Projects – Remote Full Stack Developer

- Created "Inconel," a high-performance web proxy using Next.js and Node.js optimized for low-latency request handling
- Developed "Mr. Grape," a Discord economy and music chatbot with 500+ users using JavaScript and Sequelize ORM to manage transactional data and user balances
- Designed "TutorLion," a commercial website for a tutoring agency utilizing Astro and React to establish the business's initial digital presence.

SKILLS

Languages: Python, TypeScript/JavaScript, Java, C++, SQL, Kotlin (Compose)

Frameworks & Libraries: Next.js, React, PyTorch, TensorFlow, Django, Flask

Databases & Infrastructure: PostgreSQL, MongoDB, Docker, Linux, DigitalOcean, Cloudflare Pages

Specialized: Computer Vision (YOLO, CVAT), ROS 2, LiDAR, Security (Pentesting)