Nirbhay Singh Narang

nsn8@cornell.edu | (607) 663-0652 | Portfolio | GitHub | LinkedIn | Blog | Ithaca, NY

EDUCATION

Cornell University, College of Arts & Sciences — Ithaca, NY
B.A. in Computer Science, minoring in History — *Expected 2025*

- **GPA:** 3.92/4.0 | **Honors:** Dean's List
- **Selected coursework:** Algorithms, Machine Learning, Functional Programming, Discrete Math, Networks, Lin. Algebra, OOP & DS
- **Teaching Assistant Experience:** Intro Programming with Python (Fall 2022), Modern Web Dev (Spring 2022)

PROFESSIONAL EXPERIENCE

rapStudy Inc. — Los Angeles, CA
Software Engineering Intern — *Dec 2022-Jan 2023*

- Developed reusable functional components for an *Expo* application, utilizing *React Native* and *Typescript* to build out the UI
- Implemented a custom music player using *expo-av*, *Firebase, and* other libraries featuring real-time lyric highlighting

Cornell University — Ithaca, NY
Research Assistant — *Aug 2022-Present*

- Created and troubleshot a *Latent Dirichlet Allocation* model using Python to identify and geocode social communities in ecological networks based on anonymous cell phone data for Chicago, IL

The Yang-Tan Institute at Cornell University — Ithaca, NY
Software Engineer — *Aug 2022-Dec 2022*

- Utilized *JS*, *PHP*, and the *Blade* templating engine to implement a real-time map view with the ability to search and filter points of interest (POIs) using over 30 parameters, using the Google Maps JS SDK to achieve this for the NYS Office Of Special Education.

Cornell Design and Tech Initiative — Ithaca, NY
Mobile Software Engineer — *Oct 2021-Present*

- In Flutter, developed the user interface, game logic, geolocation services, and *Google Authentication* for the CornellGO! app
- Designed DevOps workflow to deploy *Docker* application to *AWS ElasticBeanstalk* using *GitHub* Actions

Sellpoint Inc. — Boston, MA
Software Engineering Intern — *Jun 2022-Aug 2022*

- Developed 10+ production-ready functional *React* components following the *Material* design system, ensuring responsivity and localization in 3 languages using the *i18n* module.
- Implemented, refactored, and debugged 20+ *AWS Lambda* functions written in *Python 3.9x* connected to *Amazon API Gateways* and *Amazon DynamoDB* to add *CRUD* functionality to the web application connected to the backend via *Axios*
- Responsible for implementing cost-and-time efficient *REST API* endpoints to interface between the *DynamoDB* database and *React* frontend. Validated the correctness of API endpoints and *Lambda* functions using *Postman, CloudWatch,* and *ServiceLens*

Unipantry — Ithaca, NY
Software Engineering Intern — *Feb 2022-May 2022*

- Developed API endpoints in *Flask* to interface with the *Firestore* database, also building a custom search and recommendation engine using the *Algolia SDK* to reduce search time by 20%

Projects

- **SimPL:** Interpreted language with support for recursion, loops, objects, and other programming features implemented in OCaml with REPL support.
- **HM Type Inference:** Implemented the Hindley-Milner type inference algorithm for a simple programming language that includes integer constants, variables, function applications, and lambda expressions in OCaml using a recursive descent parser.
- **Named Entity Recognition:** Built, using *Python* and without any external libraries, a *Hidden Markov Model* and *Maximum Entropy Markov Model* to extract and label named entities in text, trained on the *WikiNEuRal* dataset. Implemented the *Viterbi* algorithm using dynamic programming to reduce training time by 60% with 80% accuracy
- **Version Control CLI:** Using *Python*, built a custom CLI-based version control system abstracting from *Git*, with functionality for creating, committing to, and branching from repositories with hashing, serializing, and logging
- **CaseOwl:** Web app built in *React* with a serverless backend using *AWS Lambda*, *DynamoDB*, and *AWS APIGateway* to optimise legal firm management with features like client, case, and calendar management. Added push notifications using *AWS EventBridge*.
- **InvenTree:** Full-stack *iOS* application with *Firebase* serving a *Swift* app, with a real-time interactive map using the *Google Maps SDK*.
- **Garbify:** Using *Swift* and *CreateML*, built an Object Detection and Classification application for classifying types of trash and suggesting suitable recycling methods for iOS.
- **Safely.ai:** Using *Python*, a YOLO Object Detection Model, and a COCO annotator, built a Real-Time Heavy-Vehicle Detection with integrated ANPR capabilities. Using TensorFlow for Swift, developed a Real-Time Road Pothole Detection based on the YOLO model.
- **SeeSpeech:** NLP-based Speech/Text to Indian Sign Language Translator built in *Python*. The translator can take speech/text/handwriting as input and will then output a .mp4 file containing the ISL translation.

Languages, Frameworks, and Tools

Languages: *Python, C++, Java, Swift, Dart, JavaScript, TypeScript, OCaml, PHP, SQL, C*
Frameworks: *Flask, Node.js, React/Redux, Bootstrap, jQuery, React Native, Expo, UIKit, AWS Services, NumPy, TensorFlow*
Tools: *Git, GitHub, Jira, LaTeX, Bash Scripting, UNIX, AppleScript, GitHub Actions*