Nirbhay Singh Narang

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EDUCATION

Cornell University, College of Arts & Sciences — Ithaca, NY
B.A. in Computer Science and History — *Class of 2025 (May 2025)*

- **GPA:** 3.96/4.00 | **Honors:** Dean's List
- **Selected coursework:** Analysis of Algorithms, Comp. Vision, Func. Programming, Discrete Math, Networks, Lin. Algebra, OOP & DS
- **Teaching Assistant Experience:** Intro To Programming with Python (Fall 2022), Modern Web Dev (Spring 2022)

PROFESSIONAL EXPERIENCE

Roper Center For Public Opinion Research — Remote
Incoming Fall Software Engineering Co-op — *Aug 2023-Dec 2023*

Swadesh (YCombinator, 2019) — Remote
Software Engineering Intern — *Feb 2023-Apr 2023*

- Effectively refactored and optimized more than **10** widgets, by caching results of API calls, resulting in improved performance.
- Implemented a dynamic CDN using the Sanity CMS, leveraging a custom Dart client to seamlessly interact with the CMS resulting in **40% reduction in content update time** and a **60% decrease in maintenance efforts** across the application.
- Engineered robust end-to-end integration testing modules and highly efficient modular testing frameworks leveraging Dart packages.

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

- Created and maintained a library of **20+** reusable components in React Native, resulting in a **30%** reduction in UI development time.
- Implemented a custom karaoke music player using expo-av, Firebase, and other libraries featuring real-time lyric highlighting.
- Fine-tuned custom GPT-2 based transformer model to intelligently generate lyrics based on **20+** songs for educational content, ensuring **80%** rate of syllable accuracy and **65%** compliance with original rhyme scheme.

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

- Developed multi-page, web map-based application with Laravel for the *New York State Office of Special Education*
- Implemented, using JS, PHP, and the Blade templating engine, a real-time map view displaying POIs with the ability to search and filter by **30+** parameters associated with each POI, using the Google Maps JS SDK to achieve this
- Produced custom internal scripting using Python to automate the translation of site data in over **10** languages in order to increase site accessibility, saving an estimated **20 hours** in development, translation, and design

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

- Developed **20+** production-ready React components following the Material design system, ensuring responsivity and localization in **3** languages using the i18n module. Deployed components for the Beta MVP to be shown to VC firms
- 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*

PROJECTS

- **SimPL:** Interpreted language with support for recursion, loops, objects, and other programming features implemented in *OCaml* with REPL support. Wrote custom lexer using **OCamllex** and parser using **Menhir**.
- **OCAML DBMS**: Database management system implemented using OCaml with features for executing **SQL queries** and **version control**.
- **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 to reduce training time **by 60% with 80% accuracy**.
- **CaseOwl:** Web app built in **React** with a serverless backend using **AWS Lambda, DynamoDB, and AWS APIGateway** to optimize legal firm management with features like client, case, and calendar management **serving 5 firms**.
- **InvenTree:** Full-stack iOS application with Firebase serving a Swift app, with a real-time interactive map using the **Google Maps SDK**. **Deployed on iOS App Store with 10K+ users.**
- **Garbify:** Using **Swift** *and* **CreateML**, built an Object Detection and Classification application for classifying types of trash into **5+ categories** based on image data and suggesting suitable recycling methods for iOS. **Deployed on the App Store.**
- **Safely.ai:** Using **TensorFlow for Swift**, developed a **Real-Time Road Pothole Detection** based on the YOLO model to mitigate pedestrian and cyclist accidents with **70% training accuracy**. **Deployed on the App Store.**

LANGUAGES AND FRAMEWORKS

Languages: *Python, C++, Java, Swift, Dart, JavaScript, TypeScript, OCaml, PHP, SQL, C, Go, HTML/CSS, Unix Scripting, SQL/NoSQL*
Frameworks: *Flask, Node.js, React, Hadoop, Bootstrap, jQuery, React Native, Expo, UIKit, AWS, NumPy, TensorFlow, Django, RubyOnRails*