

# Samyok Nepal

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## Education

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**University of Minnesota, Twin Cities** (Double B.S. in Computer Science & Mathematics)

- **GPA: 4.0**, dual enrolled in high school and then **took a gap year** before college.
- Competitive Programming (USACO Gold Division) with **C++**, US Congressional App Challenge Winner
- 1st place Education @ HackMIT (top 10 overall), 1st place Hack Ulowa, 1st place CuseHacks, 1st place Sonoma Hacks

## Skills

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**Skills:** Typescript, C++, Python, JavaScript, React, React Native, Java, Redux, PHP, NodeJS, HTML/CSS, SASS

**Technologies:** MongoDB, MySQL, Firebase/Firestore, Figma, Google Cloud Platform, Kubernetes, Docker, Git/Github, Vim

## Gap Year Experience

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**Software Engineer, Fiveable** (Full Time/Gap Year, fiveable.me)

Sep 2021 - Aug 2022

- Architected and implemented low-level **WebRTC** voice and video calling functionality. Started as a proof-of-concept and then scaled to general availability on Google Kubernetes Engine.
- Reduced application load times by 20x on high-traffic pages by optimizing database queries, network requests, and re-renders.
- Refactored backend to a REST-ful API and automated tests with **Jest and Puppeteer**, improving performance and stability.
- Deployed and managed servers with **Terraform** on Google Compute Engine for internal tools used company-wide.
- Designed and built user-facing features using **Typescript, Next.js, React, Redux, Material UI, and MongoDB**.

**Teaching Assistant/Grader, Art of Problem Solving** (Contractor, aops.com)

Aug 2021 - Present

- Assist twice a week in teaching online classes of 20-50 students answering questions, guiding students, and helping debug.
- Provide detailed logical and stylistic feedback to students' advanced math and **Python** solutions. Have graded introductory (Pre-Algebra, Geometry, Counting and Probability, etc.) to advanced (Calculus, WOOT, etc.) homework.

## High School Experience

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**Founder, Bobcat Notify** (Part Time, notify.samyok.us)

Nov 2019 - May 2021

- Published **Android and iOS apps** for Brookings High School students, staff, and parents for fast and reliable emergency alerts.
- Gained 2000+ downloads, more than **2.5x the number of students**. The school district offered to purchase the app for every school.
- Collaborated with school administration and IT to deliver timely and relevant push notifications and in-app updates.
- Maintained an average rating of 4.9 stars across both app stores with over 50 reviews.

**Developer, Scioly.org** (Part Time, scioly.org)

Sep 2019 - Aug 2022

- Developed custom **PHP** image gallery and file storage server to be used by more than **68,000** registered users.
- Implemented an image optimization service to reduce image file sizes by up to 80% and serve at the edge.

## Technical Projects

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**Anony.news, 3rd @ Hack for Humanity 2022** (github)

Python (OpenCV), FFmpeg, Next.js, MongoDB, Docker

- Used **OpenCV** and **OpenFace** to detect, identify, and selectively blur all unrecognized faces in real time.
- Automated deployments to DigitalOcean droplets using Docker Compose and GitHub Actions.
- Implemented the frontend to connect to a RTMP proxy server with integrated streaming to Youtube (or any other RTMP endpoint).

**Lecture.ninja, 2nd (Remote Learning) @ TAMUHack 2022** (github)

Python (OpenCV, FastAPI), Next.js, Docker

- Parsed user-uploaded lecture videos to create an interactive transcript interlaced with parsed slides from the video.
- Leveraged **OpenCV** to extract lecture slides and Google Cloud Speech APIs for transcription via a FastAPI microservice.
- Built frontend to upload video files to Google Cloud Storage and then fetch relevant data from a MongoDB instance.

**Dakota Debate Institute, Summer 2021-2022** (dakotadebate.org)

Next.js, Chakra, Express, MongoDB

- Founded and directed a 501(c)3 nonprofit to run a week-long, overnight debate summer camp with over 45 students and 10 staff.
- Developed the website and classroom management system for our free live-streamed classes.