William J. Hoppe

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EDUCATION

University of Notre Dame   **Notre Dame, IN**
GPA: 3.86/4.00 | Dean's List   Class of 2025
Major: Computer Science | Concentration: Machine Learning/Artificial Intelligence

PROFESSIONAL EXPERIENCE

Keough School of Global Affairs   **Notre Dame, IN**
Artificial Intelligence Research Assistant   *August 2023 - Present*
- Collaborated with a professor of Tech & Global Affairs to conduct experimental research, exploring the practical utility of fine-tuning the response style of a natural language processing (NLP) artificial intelligence model.
- Implemented a web scraper using the Beautiful Soup Python library to extract transcripts of 4000+ TED Talks.
- Addressed a key challenge by transforming transcripts, initially in response format, into a question-answer format necessary for fine-tuning large language models. Utilized the GPT-4 API to automate this conversion process.
- Fine-tuned Llama 2 model with unique dataset of GPT-4 generated questions paired with TED Talk responses.

Human-Computer Interaction Lab   **Notre Dame, IN**
Research Assistant   *December 2022 - Present*
- Collaborated on two projects, contributing to multimillion dollar grant-funded research relating to HCI and UX.
- Enhanced design of a React Native mobile application focused on food accessibility within Figma workspace.
- Led a user study for a Node.js application designed to enhance the graduate student admission verdict-making process through organizing and quantifying the analysis of application materials and relevant decision factors.

Cadets Cut   **Farmington, MN**
Web Developer & *SEO Analyst*   *May 2022 - June 2023*
- Designed and managed company website for a home services provider with 500+ clients using WordPress.
- Expanded customer base by 150+ clients through digital exposure, driving significant revenue growth.
- Integrated custom contact form with Firebase to store and send formatted JSON data to company via email.

RELEVANT PROJECTS

TuneWave   **Mendota Heights, MN**
Full Stack Developer   *May 2023*
- Developed web app using Node.js and JavaScript that fetches API key via serverless function deployed by Netlify.
- Utilized recurrent calls to OpenAI API to generate personalized song titles, lyrics, and album art from prompt.
- Leveraged Vite frontend build tool to efficiently manage multiple modules, expediting the development workflow.

COVID-19's Impact on US Economy Project   **Notre Dame, IN**
Project Leader   *April 2022*
- Parsed CSV data from economic institutions to construct Pandas DataFrames of quarterly trends for 15 sectors.
- Converted data into interactive Plotly graphs using Python to visualize COVID-19's impact on the US economy.
- Developed custom HTML and CSS stylesheets to present the findings effectively on the project website.

NASA WEAR Challenge   **Hampton, VA**
Team Captain   *Summer 2019*
- Prototyped a space suit of Kevlar and chainmail scales that protects astronauts from galactic cosmic radiation.
- Selected as 1 of 5 teams to present at NASA Langley Research Center to NASA space suit design committee.

LEADERSHIP AND COMMUNITY INVOLVEMENT

ND Class of 2025 Executive Council   **Notre Dame, IN**
Communications Board Member   *August 2023 - Present*
- Orchestrated executive council media outreach and merchandise design for entire class of 2025 student body.

Dunne Hall   **Notre Dame, IN**
Database, Website, & *Merch Commissioner*   *April 2022 - Present*
- Upkept database of a network for 500+ members and overhauled dorm website to promote dorm culture.
- Created custom dorm merchandise and apparel with Adobe Photoshop, resulting in doubled sales of past years.

Experimental Vehicle Team   **Mendota Heights, MN**
Team Captain   *June 2018 - August 2021*
- Led team of 12 engineers in designing and building a human-powered rover ready for a lunar terrain.
- Placed first nationally in NASA Rover Challenge at NASA Space Center in Huntington, Alabama.

SKILLS AND INTERESTS

Technical: C, C++, Python, Java, Git, HTML, CSS, JavaScript, React, Typescript, Next.js, Tailwind, Node.js, MATLAB, Bash, Assembly, Verilog | TensorFlow, WordPress, Google Suite, Microsoft Office, Adobe Suite, Fusion360, SolidWorks
Interests: Piano Improvisation | Modern Philosophy | Artificial Intelligence | Beach Volleyball | Vinyl Records