

# Zhiyuan Song

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## EDUCATION

<b>University of Virginia</b> <i>Double Major: B.A. in Computer Science and Applied Statistics</i> <ul style="list-style-type: none"><li>Overall GPA: 3.894/4.00.</li></ul>	Charlottesville, VA Aug. 2021 – Dec. 2024
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## PUBLICATION

<b>Supervised Learning for Health Opportunity Index across States</b> <i>Zhiyuan Song, Zihan Mei, Liran Li, N. Rich Nguyen</i> Accepted by <b>KDD-UC 2024</b> , and present the poster at the conference in Barcelona, Spain.	Barcelona, Spain Aug. 2024 – Aug. 2024
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## RESEARCH EXPERIENCES

<b>Explaining Clusters of Energy Usage Data Using Auxiliary Information</b> <i>Summer Research Assistant Intern with Prof. S. S. Ravi</i>	May 2024 – Present Charlottesville, VA
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- Developed tag-based explanations for energy usage clusters using auxiliary household attributes, enhancing the interpretability of clustering results across large synthetic datasets.
- Refined integer linear programming (ILP) methods to optimize cluster descriptors, validating results with statistical analysis and energy distribution patterns for practical insights.

<b>Xenophobia in Large Language Model</b> <i>Research Assistant with Prof. Madhav Marathe</i>	Feb. 2024 – Aug. 2024 Charlottesville, VA
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- Designed a keyword extraction algorithm using Latent Dirichlet Allocation (LDA) and Natural Language Toolkit (NLTK) to analyze xenophobic stereotypes in large language models, boosting analysis efficiency by 90%.
- Automated the creation of 300 test personas and implemented a scalable execution framework on the Rivanna Virtual Environment, enabling simultaneous analysis across multiple AI models.

<b>Supervised Learning for Health Opportunity Index across States</b> <i>Research Assistant with Prof. N. Rich Nguyen</i>	Feb. 2024 – Aug. 2024 Charlottesville, VA
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- Simplified the computation of the Health Opportunity Index (HOI) by developing a Random Forest model, enabling accurate predictions across all 50 U.S. states using publicly available ACS data.
- Validated the model's effectiveness by testing it in Virginia, North Carolina, and California, demonstrating strong correlations with life expectancy and contributing to public health policy applications.

## TEACHING EXPERIENCES

<b>CS4774 - Machine Learning</b> <i>Teaching Assistant with Prof. N. Rich Nguyen</i>	Aug. 2024 – Present Charlottesville, VA
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- Held weekly 3-hour office hours, assisting over 30 students with machine learning concepts and coding assignments, ensuring their academic success.
- Graded assignments for 240 students, monitored midterm exams, and participated in weekly faculty meetings to ensure smooth course operations.

<b>CS 2120 - Discrete Math and Theory</b> <i>Teaching Assistant of Prof. Kevin Sullivan</i>	Aug. 2022 – Dec. 2022 Charlottesville, VA
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- Held weekly office hours assisting 50 students with discrete math concepts and review sessions, contributing to a 99% course pass rate and receiving several thank-you letters from students.
- Graded assignments, quizzes, and exams for 77 students, and collaborated with faculty in weekly meetings to ensure effective course delivery and support.

## HONOR

<b>Dean's List of Distinguished Students</b> <ul style="list-style-type: none"><li>Full-time students who demonstrate academic excellence, minimum GPA of 3.500, while taking a minimum of 15 credits of graded course work are eligible for the Dean's List of Distinguished Students at the end of each semester.</li></ul>	Aug. 2021 – Present
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## WORK EXPERIENCES

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### FreshmanAI Start Up

Jan. 2024 – Aug. 2024

*Software Engineer*

*Beijing, China*

- Developed the front-end using React Native and back-end with Node.js, and deployed the application on Ali Yun Server with a MySQL database, ensuring responsive performance and scalability.
- Delivered a beta version of the application by January 2024, incorporating GPT-3.5-turbo for personalized mandarin support to Chinese students.

### Entropinia

May 2023 – Present

*Founder*

*Ningbo, China*

- Co-founded Entropinia, a sustainable clothing brand, and secured a legal trademark. Led the design and production of the first season's clothing line in collaboration with partners.
- Designing and developing the official Entropinia Clothing Brand website using Python and Flask, creating an online platform to showcase and promote the brand's unique products and philosophy.

### Fit Lab Start Up

May 2023 – Dec. 2023

*Co-Founder*

*Shanghai, China*

- Led the iOS app front-end development using Swift in Xcode, focusing on user profile and map features. Coordinated back-end integration with Spring Boot Java, ensuring seamless interaction between functionalities.
- Organized weekly team meetings and managed the app launch timeline, overseeing the successful implementation of key features like calorie tracking, workout timers, and community posts.

### Ideathon (Hackthon) 2023

Oct. 2023 – Oct. 2023

*Team Lead*

*Charlottesville, VA*

- Led a team of four in developing a secondhand trading platform, spending seven hours brainstorming, refining, and implementing the project idea within the hackathon timeframe.
- Successfully pitched the platform, receiving an average rating of 8/10 from judges, showcasing the team's creativity and execution under pressure.

### Chinese Students and Scholar Society (CSSS)

Sept. 2021 – May 2023

*Chair of Publicity and Technology*

*Charlottesville, VA*

- Managed CSSS's official WeChat, growing subscribers by 60% (reaching 4,552), and created mailing lists using UVA's Sympa system to streamline communication, gaining over 100 subscribers.
- Led the development of CSSS's official website using Bootstrap, enhancing the organization's online presence and promoting events through digital content and video production.

### UVA Student Council

Sept. 2021 – May 2023

*Project Lead*

*Charlottesville, VA*

- Filmed promotional videos for Arts Week and the Student Council Presidential Election, contributing to increased student engagement and a successful election campaign.
- Organized Student Council events, including Thanksgiving Bonding, and led marketing efforts for major campus initiatives.

### Student Game Developer (SGD)

Sept. 2021 – May 2022

*Unity Engineer*

*Charlottesville, VA*

- Modeled and equipped a gravity gun for soldiers in a Space VR game, optimizing its movement with VR grips for a more immersive user experience.
- Collaborated on enhancing NPC behaviors, integrating particle and sound effects for physics interactions, and optimizing game elements like lighting and polycount to improve performance and realism.

## COURSES

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**CS Courses:** Machine Learning, Autonomous Racing, Database, Software Dev Essentials, Cybersecurity, Discrete Math and Theory, Data Structures and Algorithm, Computer System and Organization.

**Statistics Courses:** Data Visual and Management, From Data to Knowledge, Foundations of Statistics, Data Analysis with Python, Nonparametric Statistics, Statistical Machine Learning.

## SKILLS & INTERESTS

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**Technical Skills:** Python, Java, C, C#, JavaScript, R, SAS, React, Node.js, Flask, AWS, Docker, SQL, Swift, HTML, CSS, PyTorch, Final Cut Pro X, Logic Pro X, Adobe PhotoShop, Microsoft Office.

**Interests:** Film-editing, Photography, Hip-hop music, Fashion, and Basketball.

**Languages:** Native in Chinese, bilingual proficiency in English.