

Alec Cheng

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Master's student with industry and academic experience in leveraging spatial analysis and data visualization to inform engineering decisions. Currently developing advanced skills in machine learning and computer vision, expanding upon expertise in design, human cognition, and data-driven methods to tackle complex engineering challenges.

EDUCATION

Georgia Institute of Technology, Atlanta, GA

August 2025 — Present

M.S. in Computer Science – Machine Learning Specialization

Relevant Coursework — Machine Learning, Computer Vision

Vanderbilt University, Nashville, TN

August 2021 — May 2024

B.S. in Cognitive Science, B.S. in Architecture and the Built Environment

GPA: 3.97/4.00 (Magna Cum Laude)

EXPERIENCE

Barge Design Solutions, Nashville, TN

May 2024 – Aug 2024

PLANNING INTERN

- Led the design of a comprehensive plan for a Florida city, communicated design visions to clients of a Nashville mixed-use development through detailed booklets and effective data visualization techniques.
- Conducted geospatial and predictive demographic analysis on a growing Alabama town that identified optimal Bus Rapid Transit corridor locations, directly informing where to focus federal transportation funds.
- Explored applications of generative and predictive AI tools in engineering workflows, from concept drafting to predictive analysis for coastal resilience, in strategic discussions with team members and business partners.
- Collaborated with architects, transportation planners, environmentalists, and engineers on planned projects across the Southeast while balancing input from local communities via forums and workshops.

Vanderbilt Institute for Spatial Research, Nashville, TN

Oct 2023 – June 2024

RESEARCH ASSISTANT

- Georeferenced and overlaid historical site plans onto current satellite imagery, revealing hidden boundaries and burial sites underneath Andrew Jackson's Hermitage site.
- Sourced, cleaned, and preprocessed geospatial datasets from public and private repositories for effective analysis, which were published publicly as interactive visualizations to educate local communities on William Edmondson's Homesite.
- Applied GIS tools and digital imaging to drive insights that enhanced public understanding of local history.

Premier Scribes, St. Thomas Hospital, Nashville, TN

March 2022 – August 2022

MEDICAL SCRIBE

- Managed and organized large amounts of patient data in fast-paced, high-volume emergency department while maintaining attention to detail, documented patient-doctor examinations, and charted patient history.

SKILLS

Programming and ML Frameworks — Python (PyTorch, NumPy, Pandas), C, C++, Java

Machine Learning — Supervised/unsupervised learning coursework, ongoing project exploring 3D gaussian splatting

GIS, Data Visualization, 3D Modeling — ArcGIS/QGIS, Rhino, Blender, Adobe Creative Suite

INVOLVEMENT AND AWARDS

Peabody Scholars — Vanderbilt University

- Selective honors program (16 students per cohort) for those engaged in community service and education.
- Helped design a new website and logo for a local food insecurity non-profit.
- Awarded a \$6000 stipend for service-learning project assisting in GIS-driven research in Mongolia.

Outstanding Graduate in Architecture & the Built Environment — Vanderbilt University

- Awarded by the Vanderbilt History of Art/Architecture department to recognize the most outstanding graduate in the major. Chosen by faculty decision and included a \$500 award.