Kirk Knutsen
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EDUCATION

PhD, **Computer Science** – Computational Linguistics   Expected May 2028
School of Engineering, Virginia Tech

M.Eng., Computer Science – Software Engineering   May 2024
School of Engineering, Virginia Tech

BA, **Communication** – Journalism, cum laude   May 2021
College of Humanities and Social Sciences, George Mason University
- Excellence in Journalism Award

RESEARCH INTERESTS

Political Science * Computational Social Science * Natural Language Processing * Communication Theory * Machine Learning

TEACHING & MENTORING EXPERIENCE

Graduate Assistant Director, Writing Center   **May 2025 – Present**
Virginia Tech, Department of English
- Coach undergraduate and graduate students in STEM-focused writing, including research papers, grant proposals, theses/dissertations, and graduate school applications
- Provide individualized feedback on clarity, structure, and argumentation to strengthen the communication of technical ideas
- Develop and edit outreach and instructional materials to promote writing center resources and accessibility
- Represent the Writing Center at university events, including orientations and resource fairs
- Collaborate with staff and faculty to design new initiatives supporting effective written communication across disciplines.

Instructor & Curriculum Designer   **June 2024 – Present**
Code Rising
- Designed and taught inclusive STEAM curricula in Digital Storytelling, Video Production, and Game Development for grades K–5, 6–8, and high school
- Created project-based lesson plans guiding students in producing short digital stories and playable video games
- Collaborated with Code Rising instructors, Casa Chirilagua staff, and Intervarsity volunteers to support bilingual, culturally responsive learning environments
- Partnered with Dominion Energy and Amazon Web Services to provide hands-on industry workshops and site visits.
- Integrated social-emotional learning and identity-building activities into camp instruction
- Contributed to a model for culturally responsive STEAM education to be presented at SXSW EDU 2026.

Graduate Teaching Assistant, Professionalism in Computing & Usability Engineering   **August 2024 – May 2025**
Virginia Tech, Department of Computer Science
- Supported instruction for Professionalism in Computing and Usability Engineering courses
- Graded assignments and team projects involving real-world usability clients
- Led classroom activities on UX methods, ethics, and professional communication
- Provided individualized feedback on writing, design, and technical documentation
  Held office hours and coordinated grading and communication with instructors.

Master of Engineering Student Ambassador   **August 2023 – December 2023**
Virginia Tech, Department of Computer Science   '
- Fostered academic and professional success by assisting students (especially those without a C.S. bachelor's) by aiding acclimation and transition to a graduate-level program
- Hosted panels and events on career advancement, academic strategies, and technical communication
- Marketed to and recruited students of non-traditional backgrounds to increase diversity of thought, opinion, and problem-solving mindsets within the field of computer science

Undergraduate Teaching Assistant, Online Journalism   **January 2021 – May 2021**
George Mason University, College of Humanities and Social Sciences
- Composed and distributed weekly multimedia announcements to enhance course engagement
- Produced instructional video tutorials on multimedia editing software to support student learning
- Facilitated weekly office hours to provide individualized guidance and constructive feedback on student journal submissions.

Learning Assistant, Introduction to Astronomy   **September 2018 – May 2019**
George Mason University, College of Science
- Assisted the course instructor with classroom instruction and lesson facilitation in introductory Astronomy
- Simplified complex physics and chemistry concepts for non-STEM majors through individualized support and small-group tutoring
- Developed comprehensive study guides and led structured exam review sessions to enhance student performance.

PROFESSIONAL EXPERIENCE
Technical Solutions Engineer   **Aug 2021 – May 2021**
Epic Systems, Verona, WI
- Developed routines/subroutines for clinics and hospitals using Mumps to support custom workflows to comply with unique state requirements
- Wrote internal Identity software documentation to allow employees to find known issues, upcoming features easily, and better understand Epic interoperability
- Established Identity standards for hospital interface systems to automate patient identification, reducing time spent on patient lookup by nurses and administrative staff
- Oversaw the launch of Epic Identity software for over 500 outpatient clinics, resolving issues caused by flawed internal design decisions, legacy EHR systems, and third-party applications
- Designed and presented dashboards to health information management directors to monitor duplicate patient rate, coding AR days, and the number of releases authorized

TECHNICAL PROJECTS
Utter Truth   **May 2025**
- Chrome extension and web dashboard enabling real-time analysis of U.S. presidential debates through AI-powered utterance segmentation and dialogue-act classification
- Integrates AssemblyAI transcription, Hugging Face inference endpoints, and custom NLTK pipelines for labeling rhetorical functions across debate segments
- Built with React, Material UI, Flask, and MongoDB Atlas, using Recharts for interactive visualization of speaker behaviors and sentiment trends
- Allows users to explore speaker-level comparisons, zoomable utterance visualizations, and feedback features such as like/dislike rating and speaker voting.

GobbleUp   **May 2024**
- Nutrition-focused web app for tracking and planning meals deployed via VT Cloud Kubernetes
- Utilizes React for the front end, Flask for the back end, and MySQL for data storage, with Sentence-BERT for advanced food item clustering
- Scrapes nutritional information from the Virginia Tech dining website, enabling on-campus students to track their nutrition and generate personalized meal plans easily
- Employs Sentence-BERT for semantic similarity and unsupervised clustering to categorize food items, enhancing meal planning accuracy and user experience.

Agile Pomodoro   **May 2023**
- Productivity-tracking web app integrating the Pomodoro Technique with Trello tickets for task management
- Developed with React, Laravel, MySQL, and OAuth for secure Trello API calls
- Offers Trello task imports, customizable Pomodoro cycles, and productivity analytics via dashboard views
- Boosts focus and efficiency by providing insights into time spent on tasks, with a cherry blossom-themed user-
- friendly interface.

PUBLICATIONS

Daryanto, T., Ding, X., Wilhelm, L. T., Stil, S., **Knutsen, K**. M., & Rho, E. H. (2025). Conversate: Supporting reflective learning in interview practice through interactive simulation and dialogic feedback. *Proceedings of the ACM on Human-Computer Interaction*, **9**(1), Article GROUP9, 1–32. https://doi.org/10.1145/3701188

Wilhelm, L. T., Ding, X., **Knutsen, K. M**., Carik, B., & Rho, E. H. (2025). *How managers perceive AI-assisted conversational training for workplace communication.* In *Proceedings of the 7th ACM Conference on Conversational User Interfaces (CUI '25)* (Article 42, pp. 1–25). Association for Computing Machinery. https://doi-org.ezproxy.lib.vt.edu/10.1145/3719160.3736639