BEN VAN SLEEN

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Education

Vanderbilt University, School of Engineering   Nashville, TN
M.S. Computer Science; B.E. Electrical & Computer Engineering, Economics   May 2023
Graduate GPA: 4.0/4.0 | **Undergraduate GPA:** 3.96/4.0
Technologies: Python, Rust, Javascript, React, Java, Clojure, C++, OCaml, PyTorch, SciKit-Learn, Docker, Kubernetes, ZooKeeper
Coursework: Deep Learning, NLP in Healthcare, Distributed Systems, Web-Based System Architecture, Artificial Intelligence

Professional Experience

McKinsey & Company, Washington, D.C.   June 2022 – Aug 2022, Aug 2023 – Present
Product Owner, Lilli Retrieval-Augmented Generation   *June 2024 – Present*
- Led end-to-end research and development for core functionality synthesizing insights across McKinsey's proprietary knowledge
- Conducted user interviews to identify urgent product need to bring answers "up-to-date"; wrote and deployed custom integration with OpenAI's search index to augment existing knowledge retrieval with real-time news stories and events from the public web
- Pioneered novel visual LLM-enabled parsing and chunking strategy to unlock rich charts, tables, and other visual content within McKinsey's 50,000 document corpus (PPTX & PDF); ultimately doubled retrieved data "hit rate" from these source types
- Built user trust through the development and optimization of novel algorithm for measuring hallucinated document citations; reduced hallucinated content by ~20% across extremely heterogeneous document types and structured data APIs

Digital Business Analyst, Pricing Transformation   *Jan 2024 – June 2024*
- Analyzed historical quoting and invoicing data to identify, design, and begin implementation of 3 pricing initiatives to improve quality of earnings; on track to realize $60M of additional gross profit by minimizing value leakage at point-of-sale
- Integrated custom Tableau data flows and dashboards with the general ledger to enable real-time margin visibility and impact tracking

Quality Assurance Lead, Lilli   *Sept 2023 – Dec 2023*
- Identified, triaged, and fixed bugs across Python/Typescript stack for RAG-based generative AI search tool supporting 20,000+ users
- Redefined AI-native pre-release testing strategy and coordinated across 100+ person team to ship features and fixes on schedule
- Drastically improved developer velocity through writing Python-based internal tooling to reduce integration test time 66%
- Designed, scoped, and delivered backend implementation of feature suggesting follow-up queries to help answer questions users did not know to ask – driving longer chat threads and increasing overall satisfaction
- Introduced neural network compilation step to reduce average inference time by 40% and worst-case time 99.2% under heavy loads

Summer Business Analyst, Cost Transformation   *June 2022 – Aug 2022*
- Collaborated with client-side counterparts to design, size, and sustainably implement 30+ initiatives mitigating pain points in crude, renewable, and product transport processes for Fortune 50 energy firm

Vanderbilt Institute for Software Integrated Systems, Nashville, TN   June 2023 – Aug 2023
- Designed and implemented Modelica-based systems engineering tool enabling LLMs to autonomously generate, debug, and compose components modeling real-world systems; example input: "design a band-pass filter circuit component with a given cutoff frequency"
- Presented research on developments in AI policy and LLM safety to 2023 National Science Foundation Munich PIRE conference

Vanderbilt Network and Data Science Lab, Nashville, TN   Dec 2020 – May 2022
- Evaluated graduate students in DS 5720: Social Network Analysis on graph theory, graph neural networks, and PyTorch-Geometric
- Scraped Reddit to build transformer-based time-series neural network predicting likelihood of a user to express mental health crises

Emerald Coast Yachts, Pensacola Beach, FL   Mar 2019 – Aug 2020
- Taught multi-day, live-aboard American Sailing Association-accredited classes certifying students to charter vessels (~30-42 feet)

Academic Projects

Simply Sickle / Senior Design Project, Vanderbilt Locke Biosensing Lab   Aug 2022 – May 2023
- Developed computer vision algorithm to identify percentage of sickled hemoglobin using OpenCV, SciKit-Learn, Raspberry Pi
- Achieved better than 98% accuracy in differentiating carrier, non-carrier, and diseased samples in extremely low-cost diagnostic

Managing Director, Vanderbilt Students Consulting for Nonprofit Organizations   Sept 2019 – May 2023
- Led team of 5 delivering real-time PowerBI dashboard solution to unify metrics across 8 separate United Way projects
- Designed successful lobbying strategy for Special Olympics Tennessee to begin receiving funding via the state budget
- Built R-based geospatial Google Cloud app to visualize and identify priority-outreach schools likely to benefit from Special Olympics

Distinctions & Interests

Distinctions: Graduated *Magna Cum Laude*, Tau Beta Pi, Walter C. Criley Interdisciplinary Prize, National Merit Scholar
Interests: Talking SEC football, Zac Brown Band, playing lacrosse, fantasy football, teaching sailing, NixOS, GNU Guix, Emacs