Garrett Uthlaut

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EDUCATION

University of Virginia | School of Engineering **Charlottesville, VA**
B.S. in Systems Engineering, Minor in Civil & Environmental Engineering *Expected: Spring 2027*
Relevant Coursework: Economics (Micro & Macro); Linear Algebra; Data Systems and Algorithms; Deterministic & Stochastic Decision Models; Land Development Engineering; Discrete Event Simulation; Energy Systems; Remote Sensing; ODE; Mathematical Statistics; Probability; Linear Statistical Modeling; Advanced ArcGIS

University of Stuttgart | School of Engineering **Stuttgart, Germany**
Global Technology Practice Study Abroad Program *Summer 2026*
- Studied sustainable engineering, infrastructure, manufacturing, and mobility through technical visits and discussions with Transsolar KlimaEngineering, Mercedes-Benz, WAFIOS, Bosch eBike Systems, Ritter Sport, and Stuttgart 21.
- Engaged with Transsolar climate engineers on integrated building design, passive climate strategies, thermal comfort, energy efficiency, and building-performance simulation.

PROFESSIONAL EXPERIENCE

Leonard D. Schaeffer Fellowship in Government Service **Washington, D.C**
Culpeper County Economic Development Intern *May 2025 - August 2025*
- Selected as 1 of 50 students nationally for the 2025 Leonard D. Schaeffer Fellowship in Government Service, alongside fellows from institutions including Harvard, Princeton, Stanford, UVA, and USC.
- Built a Cost of Living calculator to model household relocation to Culpeper County
- Collaborated with county officials and local businesses to promote workforce development and investment
- Worked on Shop Local Campaigns in Culpeper County

University of Virginia Athletics **Charlottesville, VA**
NCAA Women's Basketball Director of Operations Intern
NCAA Women's Basketball Scouting Assistant
NCAA Women's Basketball Manager
NCAA Women's Basketball Practice Squad Player *September 2024 - Present*
- Assist coaching staff with opponent scouting reports, video breakdown, and data analytics
- Support logistics including travel coordination, equipment management, and practice setup
- Collaborate with players and staff to enhance team performance and efficiency

Ragged Mountain Running and Walking Shop **Charlottesville, VA**
Running Shoe Fitter & Sales Associate *June 2023 - Present*
- Offer individualized running/walking shoe fittings by understanding customer requirements, fitness needs, mileage, training goals, terrain, and product specifications.
- Develop extensive knowledge of running shoes, clothing, and accessories while creating strong customer connections through recommendations and understanding of the local Charlottesville running community.
- Help maintain daily store operations, including organizing products and operating POS systems, while training new employees in product fittings and customer service.

Second State Records LLC **Charlottesville, VA**
Cofounder and Creative Director *Dec 2024 - Present*
- Founded and scaled an independent record label, managing artist recruitment, production, branding, distribution, and promotional campaigns across major streaming platforms for 6+ artists.
- Built and managed end-to-end studio and project operations, including CRM workflows, booking/payment systems, rate cards, contractor onboarding, and coordination of up to 7 concurrent projects.

RESEARCH EXPERIENCE & PUBLICATIONS

Environmental Institute, University of Virginia **Charlottesville, VA**
Undergraduate Researcher - AI-Enabled Evaluation of WUI Wildfire Risk Systems for Decision Support *2026 - Present*
- Consider fire risk and decision support technologies for the wildland-urban interface (WUI) with a focus on the integration of environmental data, models, and AI techniques.
- Conduct a review and synthesis of wildfire risk literature, data sets, and modeling efforts to determine appropriate methods that can be applied to fire prediction and decision support
- Assist with the creation of an AI framework and predictive modeling to assess wildfire risk with remote sensing, meteorological, and land surface factors.

Global Hydrology Lab, Johns Hopkins University **Baltimore, MD**
Undergraduate Researcher *2025 - Present*

- Co-authored a journal article published in Remote Sensing analyzing more than 21 years of data obtained through earth observation to investigate the causes and vegetation-water interactions after wildfires in the Zambezi River Basin.
- Work on remote sensing and ecohydrological investigations with Dr. Venkataraman Lakshmi on topics such as water resources, climate variability, wildfire, and hydrological extremes in large river basins.
- Contribute to NASA Earth Science-supported hydrology research using Python, Google Earth Engine, GIS, and advanced statistical analysis.

Peer-Reviewed Publication

Lutz, H.; Uthlaut, G.; Kim, K.; Lakshmi, V. "Surface Thermal State, Antecedent Hydroclimate, and Post-Fire Vegetation–Water Response in the Zambezi River Basin: A Multi-Source Environmental Time-Series Analysis." Remote Sensing, 18(17), 3009, 2026. DOI: 10.3390/rs18173009.

- Co-authored a peer-reviewed study integrating 263 months of multi-source Earth-observation data to investigate wildfire and ecohydrological dynamics across the Zambezi River Basin.
- Contributed to study conceptualization, environmental data curation, and manuscript development, supporting analysis of relationships among wildfire activity, hydroclimate, vegetation, and land-surface conditions.

TECHNICAL PROJECTS

Sustainable Residence Hall Capital Project - UVA Project Business Planning **Charlottesville, VA**
Project Team Member *Fall 2025*

- Developed a comprehensive capital-project proposal for a 10-story, 720-bed sustainable residence hall, incorporating conceptual design, zoning and site constraints, permitting, construction logistics, and design-build scheduling.
- Built a $115.1M cost model comprising $74.8M in direct costs, $29.1M in indirect costs, and $11.2M in contingencies while evaluating capital, state, philanthropic, and debt funding sources.
- Assessed project financial and environmental feasibility, modeling housing revenue and approximately $509K in annual energy savings from geothermal systems, energy-efficient windows, green infrastructure, and solar generation.

GarrettOS - Autonomous AI & Personal Intelligence Platform **Charlottesville, VA**
Independent Developer *2026 - Present*

- Architected a distributed AI platform integrating OpenClaw, LiteLLM, Ollama, Qdrant, Valkey, Screenpipe, Whisper, and Obsidian to support autonomous agents, persistent memory, research, and workflow automation.
- Developed an automated second-brain pipeline that captures screen and audio activity, extracts summaries, decisions, projects, and tasks, and injects relevant context into downstream AI-agent workflows.
- Built and deployed a Next.js/Vercel command center and multi-agent workflows for autonomous research, critique, development, and review, combining cloud and locally hosted LLMs with persistent memory and human approval checkpoints.

EXTRACURRICULARS

UVA Club Running **Charlottesville, VA**
Two-Time NIRCA Club Running National Competitor *September 2023 - Present*

- Competed in local, regional and national cross country, indoor track and outdoor track NIRCA affiliated meets

Student Hip Hop Association **Charlottesville, VA**
President *May 2025 - Present*

- Organize all activities related to running the student organization, membership, and recruitment via social media, campus activities, and community events.
- Arrange and organize any activities such as concerts, parties, and community events organized by our sponsor.
- Work in collaboration with student organizations from UVA on events, videos, and marketing campaigns.

SKILLS

- **Programming & Data:** Python, R, SQL, Java, MATLAB, Minitab, Excel, Statistical & Predictive Modeling, Monte Carlo Simulation, Mathematical Modeling
- **Civil, Construction & Project Development:** Capital Project Planning, Land Development, Site Planning, Project Cost Estimating, Construction Scheduling, Design-Build Delivery, Zoning & Land Use, Permitting, Site Utilities, Stormwater Management, Construction Administration, Financial Feasibility Analysis, Sustainable Building Systems
- **Energy & Environmental Systems:** Energy Systems Modeling, Energy & Emissions Analysis, Life-Cycle Cost Analysis, Sustainability & Resilience, Environmental Systems Analysis
- **AI & Software:** Agentic AI Systems, LLM Orchestration, RAG, OpenClaw, LiteLLM, Ollama, Qdrant, Next.js, Vercel, Docker, REST APIs, OpenCode, Cursor, Git
- **Engineering & Geospatial Tools:** ArcGIS Pro, Autodesk Forma, Autodesk Fusion 360, Bluebeam Revu, Google Earth Engine, Remote Sensing