Greg Benton

Senior Applied Scientist
Generative modeling and language models

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Experience

•**Senior Applied Scientist**; *Dandy* July 2025 - Present

- Technical lead for a roughly five-person team taking prosthetic-design automation from concept to production: thousands of designs daily, with 80% of cases in targeted classes requiring no human designer
- Developed refinement methods for generated crowns, using smooth displacement weighting to preserve surface smoothness while optimizing competing loss terms
- Trained components of diffusion and flow-matching models; developing a multimodal image and point-cloud model for anatomical feature modeling, evaluated through expert review
- Built and deployed geometric validity checks (depth, curvature, raycasting) and automation workflows; monitored automation rates and helped deploy models collectively serving about 100,000 requests/day
- Trained 3D point-cloud transformers to segment jaw scans into anatomical structures
- Led the ML internship program, directly managing and mentoring ML interns

•**Senior Applied Scientist**; *Celonis* Feb 2023 - July 2025

- Conceived and implemented custom process-event tokenization and fine-tuned LLMs for event prediction, combining semi-structured text inputs with predictions restricted to process-event tokens; led experiments and manuscript writing
- Led a roughly five-person team developing enterprise LLM and agent applications from research to production, enabling access to accounts payable and receivable data, document-flow tracing, and live dashboard creation
- Deployed applications across dozens of globally distributed servers through continuous-deployment pipelines addressing regional regulatory requirements in North America, MENA, and Asia

•**Research Intern**; *Microsoft Research* Summer 2022

- Conceived and implemented a graph-based language-modeling method for detecting fileless cyber-attacks from semi-structured shell commands
- Trained weakly supervised threat-detection models on billions of shell commands, improving detection performance

•**Quantitative Research Summer Associate**; *J.P. Morgan Chase* Summer 2021

- Developed computational methods for approximating stochastic differential equations and pricing options under intractable models; incorporated into pricing models to improve forecast accuracy and efficiency

•**Research Intern**; *Spotify* Summer 2020

- Developed podcast recommendations from sequential listening patterns; published and presented at the RecSys 2020 PodRecs Workshop
- Designed an unsupervised system to detect platform misuse from consumption data alone

Technical Skills

Modeling: Python, PyTorch, Hugging Face (Transformers, Diffusers)
Production: Google Cloud, Temporal, MLflow, Argo CD, Datadog, Chronosphere

Education

•**Ph.D. in Computer Science** Aug 2019 - Jan 2023
New York University

•**B.S. & M.S. in Applied Mathematics** Jan 2015 - May 2018
University of Colorado *Summa Cum Laude*

Publications

•**ProAcT: Process Activity Tokenization in Large Language Models**
G Benton, *Y Ananth, S Jaffe, J Naughton*
ICPM 2025, Poster Track

•**SOLMformer - Incorporating Sequence and Observation Level Metadata for Categorical Time Series Modeling**
Y Ananth, ***G Benton****, J Fang, J Cheung, X Chu, C Yu*
ICML SPIGM Workshop 2024

•**Building Process Mining Dashboards Manually or AI-assisted with Celonis Views**
C Ullrich, T Lata, ***G Benton***
ICPM Demo Track 2024

•**Deep probabilistic time series forecasting over long horizons**
G Benton*, N Gruver, W Maddox, A Wilson*
Preprint 2023

•**Bayesian Model Selection, the Marginal Likelihood, and Generalization**
S Lotfi, P Izmailov, ***G Benton****, M Goldblum, A Wilson*
ICML 2022 Outstanding Paper Award

•**Volatility Based Kernels and Moving Average Means for Accurate Forecasting with Gaussian Processes**
G Benton*, W Maddox, A Wilson*
ICML 2022

•**Residual Pathway Priors for Soft Equivariance Constraints**
M Finzi[*]*,* ***G Benton***[*]*, A Wilson*
NeurIPS 2021

•**Loss Surface Simplexes for Mode Connecting Volumes and Fast Ensembling**
G Benton*, W Maddox, S Lotfi, A Wilson*
ICML 2021

•**Learning Invariances in Neural Networks from Training Data**
G Benton*, M Finzi, P Izmailov, A Wilson*
NeurIPS 2020

•**Rethinking Parameter Counting in Deep Models: Effective Dimensionality Revisited**
W J Maddox[*]*,* ***G Benton***[*]*, A Wilson*
Preprint 2020

•**Trajectory Based Podcast Recommendation**
G Benton*, G Fazelnia, A Wang, B Carterette*
RecSys PodRecs Workshop 2020

•**Function-Space Distributions over Kernels**
G Benton*, W Maddox, J Salkey, J Albinati, A Wilson*
NeurIPS 2019 ICML Time Series Workshop Best Paper Award

[*]Equal contribution.