CALEN WALSHE

Staff Quantitative Researcher (Data Science + UX)

calen.walshe@gmail.com | www.calenwalshe.com | github.com/calenwalshe | linkedin.com/in/calenwalshe

Seattle / Redmond, WA

SUMMARY

Calen Walshe is a survey scientist and applied ML researcher who builds end-to-end systems for turning human feedback into production signals. He combines classical survey methodology, causal inference, and NLP to derive insights from implicit user behavior. At Meta, he leads the design and deployment of scalable pipelines that feed quality metrics and sentiment signals directly into core ranking and recommendation models. He is deeply attuned to measurement reliability, drift detection, and end-to-end observability in real-time serving environments. A data professional who ships, Calen bridges behavioral science and infrastructure—from conceptual survey design to engineering high-performance inference systems.

CORE COMPETENCIES

System Design & Data Architecture

- Design end-to-end pipelines converting human feedback into production-ready ML signals
- Architect scalable survey collection systems with real-time quality validation mechanisms
- Build data lakes optimized for behavioral signals, text analysis, and inference workflows
- Engineer schema standards that bridge research prototypes and production ranking models

Causal Inference & Measurement Science

- Design randomized controlled trials with statistical power for product-scale intervention measurement
- Implement quasi-experimental methods for observational inference when randomization is infeasible
- Validate measurement instruments through reliability testing and sensitivity analysis frameworks

Behavioral Signal Engineering

- Transform open-text survey responses into structured features using NLP and embedding techniques
- Extract implicit sentiment signals from behavioral data patterns and engagement metrics
- Design composite quality scores that correlate with long-term user satisfaction outcomes

ML Deployment & Observability

- Deploy production inference systems with sub-millisecond latency requirements using distributed computing

- Implement comprehensive monitoring for model drift, data quality, and prediction accuracy
- Build reproducible training pipelines with version control for features, models, and evaluation metrics
- Design A/B testing frameworks for online model evaluation and gradual deployment strategies

Strategic Influence & Knowledge Systems

- Create decision frameworks that translate complex behavioral research into actionable product strategy
- Develop internal methodology playbooks for scaling survey science across product verticals
- Mentor cross-functional teams on measurement design, statistical interpretation, and causal reasoning
- Build knowledge-sharing systems that democratize access to behavioral insights and research methods

---

EXPERIENCE

Meta — Staff Quantitative Researcher (Ad Tech)

Nov 2021 – Present | Bellevue, WA

- Designed and ran large-scale A/B and quasi-experiments to evaluate new product features; results directly informed multi-billion-dollar revenue decisions.
- Defined and operationalized north-star metrics for ad quality and improved user experience, now standard across product and engineering teams.
- Built production-level data pipelines in SQL and Python for survey integration and experimentation, enabling self-serve analytics across the org.
- Partnered with product and engineering to balance fraud risk, implementation cost, and customer experience in trust and safety systems.
- Pioneered applications of generative AI at scale, deploying LLM pipelines to classify millions of pieces of user feedback and produce new quality signals for ranking models.
- Created and socialized dashboards combining behavioral data, survey insights, and ML outputs; adopted by hundreds of stakeholders for decision-making.
- Key member of the Ads core leadership group, partnering cross-functionally to guide strategy and execution for a team responsible for a significant share of Meta's revenue.

C. Light Technologies — Data Scientist

Mar 2021 – Nov 2021 | Berkeley, CA

- Built software classifiers to automatically detect poor-quality retinal scans, improving diagnostic reliability.
- Collaborated with hardware engineers to embed the detection system directly into devices, enabling real-time rejection of invalid scans.
- Work directly contributed to patent US20250057414A1 on retinal disease detection methods (link).

Center for Perceptual Systems — Research Scientist (Postdoc)

Aug 2015 – Mar 2021 | Austin, TX

- Designed and executed computational models of human perception using Bayesian inference, machine learning, and large-scale neuroimaging data.
- Built reproducible analysis pipelines and simulation frameworks to evaluate cognitive performance and visual attention under uncertainty.
- Delivered first-author research featured in *Current Biology* and AAAI, translating findings into algorithms for perception and decision modeling.
- Partnered across neuroscience, psychology, and computer science to prototype ML-driven methods and secure multi-disciplinary research funding.

EDUCATION

PhD, Cognitive Neuroscience — University of Edinburgh

2011–2015
Computational Visual Cognition Lab · Dean's Scholarship & NSERC Fellowship

BSc, Cognitive Science (AI concentration) — Simon Fraser University

2005–2009

SELECTED PUBLICATIONS

- **Walshe, R.C.**, Geisler, W.S. (2022). Efficient Allocation of Attentional Sensitivity Gain in Visual Cortex Reduces Foveal Sensitivity in Visual Search. *Current Biology.*
- Zhang, R., **Walshe, R.C.**, Liu, Z., Guan, L., Muller, K.S., Writner, J.A., Zhang, L., Hayhoe, M.M., Ballard, D.H. (2020). Atari-HEAD: Atari Human Eye-Tracking and Demonstration Dataset. *Proceedings of the Thirty-Fourth AAAI Conference on Artificial Intelligence (AAAI-20).*
- **Walshe, R.C.**, Nuthmann, A. (2021). A computational dual-process model of fixation duration control in natural scene viewing. *Computational Brain & Behavior.*