

# CALEN WALSH

Staff Quantitative Researcher

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Seattle / Redmond, WA

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## SUMMARY

Calen Walsh 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.

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## CORE COMPETENCIES

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### 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
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## EXPERIENCE

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### Meta — Staff Quantitative Researcher

*Nov 2021 – Present | Bellevue, WA*

- Led quantitative UX research programs measuring ad surface usability and user sentiment by integrating in-product telemetry with high-volume survey instrumentation to pinpoint friction points.
- Ran large-scale UX experiments (randomized and quasi-experimental) to evaluate design and policy changes on satisfaction; results steered multi-billion-dollar roadmap decisions.
- Defined user experience north-star metrics that translate qualitative insights into production ranking signals; adopted as standards across product and engineering teams.
- Built production SQL and Python pipelines that stitch survey feedback with interaction traces, enabling self-serve UX analytics and longitudinal cohort tracking.
- Deployed LLM-based classifiers to code millions of open-ended responses and surface emergent UX issues in real time for ranking and policy partners.
- Created dashboards aligning design, PM, and engineering stakeholders on journey health metrics; now core to weekly decision rituals.
- Partnered with design, policy, and trust teams to embed UX guardrails in feature launches, balancing experience, safety, and implementation cost.

### 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.
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## EDUCATION

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### 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

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## SELECTED PUBLICATIONS

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- **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*.