

Tom (Aviv) Emanuel, PhD

Computational Research Lead | Behavioral Data Science | People & User Insights | AI-Enabled Research

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SUMMARY

Computational research lead with a PhD and 11+ years applying computational methods to human behavior, from controlled experiments to platform datasets with millions of users, leading research teams and programs that turn user, survey, and product data into actionable people and product insights. Expert in large-scale behavioral measurement, survey and experimental design, longitudinal research, applied statistics, Bayesian and mixed-effects modeling, predictive and behavioral analytics, and research storytelling. Author of 16 peer-reviewed papers (500+ citations; 3 more under review), with \$213.8K in research funding and awards; builds AI-enabled products with LLMs and AI coding agents.

CORE SKILLS

Computational behavioral research: benchmarking and longitudinal studies, user sentiment/experience measurement, survey design, sampling, bias and measurement validity, experimentation/A-B testing, product analytics, mixed-methods synthesis

Statistics and data science: regression, mixed-effects models, Bayesian/MCMC (Stan), inference, experimental design, predictive modeling, machine learning, simulation, data visualization, uncertainty and limitations

Tools and languages: R, Python, SQL, Excel, Qualtrics, Jupyter, Power BI, Tableau, Git, Unix, Matlab, LLM workflows and AI coding agents; preregistration and open data; English fluent, French (B2)

Independently certified (micro1): 47 skills via structured assessments, including predictive modeling, machine learning and modeling judgment, statistical programming and data wrangling, data quality and methodology critique, rubric design and quality evaluation, prompt authoring, and AI coding agents (Codex, Claude)

SELECTED IMPACT

- Improved user-retention prediction quality by 23% on 10 years of product data and translated behavioral-marker models into decision-ready retention insights.
- Led computational research programs/teams of up to 6 collaborators across 43 postdoctoral months; mentored 24 student researchers across three universities.
- Modeled longitudinal behavior at platform scale, in projects with brain-training and online-learning platforms spanning millions of users and with real-world tennis competitions, alongside experimental, survey, and neuroscience data in repeatable R/Python pipelines.
- 16 peer-reviewed publications (including *JEP: General*, *Cognition*, and *eLife*) and 500+ citations; invited talks at Harvard, NYU, and the Donders Institute; ad hoc reviewer for *JPSP* and *JEP: General*.

PROFESSIONAL EXPERIENCE

AI Programmer and Founder | Spark (founder-led startup) Jan 2026 - Present

- Building Spark, a fully automated, LLM-based fitness-coaching app; took it from market discovery to a working web prototype within the first quarter, using automated insight generation to test early user and product hypotheses.
- Engineered the data and content pipeline behind it (exercise catalog, workout protocol, Supabase edge functions, and an exercise-figure rendering pipeline with automated QA gates), orchestrating AI coding agents (Claude, Cursor, Codex) and reviewing and approving their output.

Statistician / Data Scientist (Contract) | micro1 Aug 2025 - Present

- Selected for quality-control responsibilities after strong AI-refinement performance; applied statistical judgment to top-tier model-output review, error detection, and calibrated quality evaluation in fast-turn remote workflows.

Statistical Consultant / Data Scientist Nov 2023 - Aug 2025

- Led analytics workstreams for a long-term client; identified behavioral markers of user persistence across 10 years of large-scale product data and built predictive models that improved retention-prediction performance by 23%.
- Turned behavioral signals and model outputs into actionable retention insights for non-technical stakeholders.

Computational Researcher | McGill University Sep 2023 - Apr 2025

- Led a research program on reward-independent motivation and sustained engagement; designed online studies with daily data-quality checks on incoming data, built computational models of participant behavior, and communicated model performance, limitations, and implications.

Computational Researcher | Hebrew University of Jerusalem Oct 2021 - Aug 2023

- Led a research program on reinforcement learning, decision-making, and computational modeling; applied Bayesian/MCMC methods to multi-study datasets and built end-to-end R/Python analysis pipelines.
- Managed cross-functional projects: timelines, weekly progress meetings, and review of technical outputs.

R Instructor and Statistical Programming Coach | Self-employed Nov 2018 - Sep 2023

- 4+ years of R and statistical programming coaching; helped 13 learners move into data and tech roles.

Doctoral Researcher | Tel Aviv University Oct 2016 - Mar 2022

- Built R-based open-science pipelines across behavioral, neuroscience, exercise, survey, and app-user data; developed online study tools and survey instruments.
- Co-authored a methodological critique of the field-standard perceived-effort rating scale (*Sports Medicine*, 160+ citations); guest lecturer in graduate research-methods courses.

EDUCATION

PhD, Experimental Psychology and Exercise Science | Tel Aviv University | 2022 | MA, Experimental Psychology | Tel Aviv University | 2017 | BA, Psychology and Philosophy | Ben-Gurion University | 2015