

Ramraj Velmurugan

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Director, Labs & AI, Komodo Health SF

June 2025 – present

- Part of the 4-member Engineering Management Team that oversees *all* engineering and product decisions at Komodo.
- Designed, prototyped, and productionalized Marmot, Komodo's Flagship AI offering.
- Created a full AI Agent platform with Agent-/MCP-management, evals and enterprise-grade tenant provisioning.

Engineering Manager, Compute, at Komodo Health SF

Dec 2024 – June 2025

- Manage 6-member team responsible for Maplab Enterprise workspaces and 1000+ Snowflake accounts.
- Designed and released a highly available underwriting API, with subsecond random access to 10+TB of records.

Engineering Manager, Office of the CTO (Komodo Health Mavens India)

Apr 2023 – Dec 2024

- Manage the Internal Data Apps team, releasing the no-code analytics tool Genie, and a data overview app, Atlas.
- Guide the data-related architectural decisions across the organization from the Office of the CTO.

Staff Software Engineer at (Komodo Health Mavens India)

Dec 2022 – Mar 2023

- Help establish org-wide data architecture policy from the Office of the CTO
- Establish and manage the “Internal Apps” team to facilitate internal analytics and solutions applications.

Senior Software Engineer at (Komodo Health Mavens India)

Jan 2022 – Nov 2022

DS Tech Lead Contractor at Komodo Health NY

Oct 2019 – Jan 2022

- Spin up the core data interface team from scratch as part of a complete refactor of the organization’s technology stack.
- Create and productionalize a cohort-creation API that powers every product at Komodo Health
- Create a SQL generation engine that optimizes and generates complex queries to scan 100+ TB data in seconds.
- Optimize and contribute to fully automated data pipelines to the client’s snowflake data warehousing platform.

Data Scientist at Komodo Health NY

Jan 2018 – Oct 2019

- Worked as a “full stack data scientist” – fully developing a data analytics tool from prototype to forming a team and being tech-lead of commercial product with > \$20M ARR.
- Created an internal dashboard allowing visualization of terabytes of data using dc.js and highly optimized Redshift indexes.
- Developed tree-based ML models that perform entity classification and categorization at scale.

Fellow at Insight Data Science, New York

Sep – Dec 2017

- Created [TweetMap live](#) to geolocate and visualize tweets during natural disasters.
- Collected 18 million tweets about Hurricane Irma, extracted their location from the text and visualized them on a map.

Graduate Research Assistant at UT Southwestern Medical Center, Dallas

2009 – 2017

- 3D super-resolution microscopy data-processing ([ramrajv.com/smlm](#))
- Multidimensional imaging data visualization and analysis ([ramrajv.com/mila](#))

Projects

Technical Co-founder of [inferalpha.com](#), a book-lending startup

09-2014 – 11-2017

- Implemented the front- and back-end of a children’s books-subscription site using ASP and Azure SQL, hosted using Microsoft’s BizSpark program.

Academic software development

08-2009 – 12-2017

- Worked as part of the UI and software development team for Microscopy Image Analysis Tool ([wardoberlab.com/software/miatool](#)), for multidimensional data visualization and processing

Education

PhD, Biomedical Engineering

08-2009 – 08-2017

The University of Texas Southwestern Medical Center at Dallas, TX.

Master of Science, Molecular Biology

07-2008 – 07-2009

Institute for Research in Immunology and Cancer, Université de Montréal, Canada.

Bachelor of Technology, Industrial Biotechnology

06-2004 – 04-2008

AC College of Technology, Anna University, Chennai, India

Publications

| | | Citations | Year |
|--|--|-----------|------|
| Microscopy data analysis: | | | |
| ▪ Sage D, Pham TA, ... <u>Velmurugan R</u> , ... Holden S. (7 th of 20 total authors) Super-resolution fight club: assessment of 2D and 3D single-molecule localization microscopy software. Nature Methods . | | 392 | 2019 |
| ▪ Lin D, Lin Z, Cao J, <u>Velmurugan R</u> , Ober RJ, Ward ES. A two-stage method for automated detection of ring-like endosomes in fluorescent microscopy images. PLoS ONE . | | 6 | 2019 |
| ▪ <u>Velmurugan R</u> , Chao J, Ram S, Ward ES, and Ober RJ. Intensity-based axial localization approaches for multifocal plane microscopy. Optics Express . | | 9 | 2017 |
| ▪ Chao J, <u>Velmurugan R</u> , You S, Kim D, Ward ES and Ober RJ. Remote focusing multifocal plane-microscopy for the imaging of 3D single molecule dynamics with cellular context. Proceedings of SPIE . | | 5 | 2017 |
| ▪ Lin D, Lin Z, <u>Velmurugan R</u> , Ober RJ. Automatic endosomal structure detection and localization in fluorescence microscopic images. IEEE International Symposium on Circuits and Systems . | | 1 | 2017 |
| Cell biology: | | | |
| ▪ <u>Velmurugan R</u> , Ramakrishnan S, Kim M, Ober RJ, Ward ES. Phagocytosis of antibody-opsonized tumor cells leads to the formation of a discrete vacuolar compartment in macrophages. Traffic . | | 11 | 2018 |
| ▪ Hyenne V, Tremblay-Boudreault T, <u>Velmurugan R</u> , Grant BD, Loerke D, Labbé JC. RAB-5 controls the cortical organization and dynamics of PAR proteins to maintain <i>C. elegans</i> early embryonic polarity. PLoS ONE . | | 31 | 2012 |
| Therapeutic antibody biology: | | | |
| ▪ Challa DK, Wang X, Montoyo HP, <u>Velmurugan R</u> , Ober RJ, Ward ES. Neonatal Fc receptor expression in macrophages is indispensable for IgG homeostasis. mAbs . | | 63 | 2019 |
| ▪ Khare P, Challa DK, Devanaboyina SC, <u>Velmurugan R</u> , Hughes S, ... Ober RJ, Ward ES. Myelin oligodendrocyte glycoprotein-specific antibodies from multiple sclerosis patients exacerbate disease in a humanized mouse model. Journal of Autoimmunity . | | 38 | 2018 |
| ▪ <u>Velmurugan R</u> , Challa DK, Ram S, Ober RJ, Ward ES. Macrophage-mediated trogocytosis leads to death of therapeutic antibody-opsonized tumor cells. Molecular Cancer Therapeutics . | | 115 | 2016 |
| ▪ Li R, Chiguru S, Li L, Kim D, <u>Velmurugan R</u> , Kim D, ... Mason R, Ober RJ, Ward ES. Targeting phosphatidylserine with calcium-dependent protein-drug conjugates for the Treatment of Cancer. Molecular Cancer Therapeutics . | | 21 | 2017 |
| ▪ Challa DK, <u>Velmurugan R</u> , Ober RJ, Ward ES. FcRn: From Molecular Interactions to Regulation of IgG Pharmacokinetics and Functions. Fc Receptors. (Book chapter) | | 115 | 2014 |
| ▪ Ward ES, <u>Velmurugan R</u> , Ober RJ. Targeting FcRn for therapy: from live cell imaging to in vivo studies in mice. Immunology Letters . | | 16 | 2014 |
| ▪ Bansal P, Khan T, Bussmeyer U, Challa DK, Swiercz R, <u>Velmurugan R</u> , Ober RJ, Ward ES. The encephalitogenic, human myelin oligodendrocyte glycoprotein-induced antibody repertoire is directed toward multiple epitopes in C57BL/6-immunized mice. Journal of Immunology . | | 24 | 2013 |