Valliappa Lakshmanan (Lak)

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Employment History

2022-Present: As Operating Executive at Silver Lake Partners, a global technology investment firm, I partner with the management of portfolio companies to improve their value through data and AI-driven innovation. I also provide guidance on the fund's investments in public cloud, data analytics, and machine learning.

2019-2022: As Director (Global Head) for Data Analytics and AI Solutions on Google Cloud, I led a team that builds software solutions for cross-industry business problems using Google Cloud's data analytics and machine learning products. A few of the solutions from my team:
- Contact Center AI Insights
- Anomaly Detection
- MLOps
- Data warehouse modernization

In 2021, the solutions from my team generated $800+ million in annual revenue.

2016-2019: As a **Technical Lead** for the **Google Cloud Platform**, my mission was to democratize machine learning so that it can be done by anyone anywhere using Google's amazing infrastructure (i.e., without deep knowledge of statistics or programming or ownership of lots of hardware).

- Enabled Google Cloud adoption by writing O'Reilly books on data science on GCP and BigQuery, developing and teaching Coursera courses on Big Data and Machine Learning on GCP, and developed Data Engineering certification.
- Co-founded Google's Advanced Solutions Lab immersive machine learning.
- Helped create several ML consulting service offerings, delivered consulting engagements, wrote many samples and technical articles, and mentored ML consultants.

In 2019, 300k+ learners spent 4+ hours on content developed by my team.

2014-2016: As **Director** of Meteorology in the Data Science unit of the **Climate Corporation**, I led a team of data scientists (statisticians, engineers, meteorologists) building the weather inputs to a data analytics system whose goal is to improve farmers' yield.

- Developed market-leading rainfall product that is more timely and more accurate than any other system today.
- Formulated strategy behind product offerings and science roadmaps.
- Carried out hands-on data science while also mentoring a team of relatively junior data scientists into a world-beating team.

1995-2014: As **Senior Research Scientist** at the University of Oklahoma/**National Severe Storms Laboratory**, I focused on real-time pattern recognition algorithms, big data analysis techniques and statistical methods for weather phenomena.

- Led development of WDSS-II, a suite of severe weather algorithms now used worldwide in government and industry.
- Technical lead on OPUP, a software system that enabled the Air Force to consolidate its weather operations.

Education

1999-2001: Ph.D. in Electrical and Computer Engineering from U. **Oklahoma**, Norman OK

1993-1995: M.S. in Biomedical Engineering from The **Ohio State** University, Columbus OH

1989-1993: B.Tech. in Electronics and Communications Eng. from the **Indian Institute of Technology,** Madras, India

Books

V Lakshmanan, Data Science on the Google Cloud Platform Edition 2, O'Reilly Media, Inc., 2022. ISBN: 978-1098118952

V Lakshmanan, M Gorner, R Gillard, Practical Machine Learning for Computer Vision: End-to-End Machine Learning for Images, 2021. ISBN: 978-1098102364

V Lakshmanan, S. Robinson, M. Munn, Machine Learning Design Patterns, 2021. ISBN: 9781098115784

V Lakshmanan, Data Science on the Google Cloud Platform, O'Reilly Media, Inc., 2017. ISBN: 9781491974551

V. Lakshmanan and J. Tigani, Google BigQuery: The Definitive Guide: Data Warehousing, Analytics, and Machine Learning at Scale. O'Reilly Media, 2019. ISBN: 978-1492044468

V. Lakshmanan, Automating the Analysis of Spatial Grids: A Practical Guide to Data Mining Geospatial Images for Human and Environmental Applications. Springer, 2012. ISBN: 978-94-007-4074-7.

V. Lakshmanan, E. Gilleland, A. McGovern, and M. Tingley, eds., Machine Learning and Data Mining Approaches to Climate Science: Proceedings of the Fourth International Workshop on Climate Informatics. Springer, 2015.

Over 50 book chapters and journal publications. For full list, see
http://aisoftwarellc.weebly.com/papers.html

Software

- Developed C++ software for weather radar analysis:http://www.wdssii.org/

- Open-source software corresponding to all my books is on GitHub:

    - https://github.com/GoogleCloudPlatform/practical-ml-vision-book

    - https://github.com/GoogleCloudPlatform/ml-design-patterns

    - https://github.com/GoogleCloudPlatform/bigquery-oreilly-book

    - https://github.com/GoogleCloudPlatform/data-science-on-gcp

    - http://github.com/lakshmanok/asgbook

- Software design, architecture, implementation and technical leadership experience.

- [Used to be] An expert in Java and C++; fluent in Python.

Leadership Experience

- 2019-Present: Lead the development of data analytics and AI solutions in Google Cloud

- 2016-2019: Lead the development of data analysis and machine learning courses for Google Cloud Platform

- 2014-2016: Led the Data Science team at the Climate Corporation that develops the weather products, including the rainfall estimates, that power Climate FieldView Prime.

- 2000-2014: Led the team that developed WDSS-II, a suite of severe weather algorithms, that is widely used in government and private industry all over the world.

- 2010-2014: Curriculum lead at ROI, a training company that provides new hire training primarily in the financial industry, and managed considerable growth in programs and instructors while maintaining quality of coursework and instruction.

- 1998-2000: Technical lead of OPUP, a software system used by the US Air Force to consolidate their weather operations regionally.

- I have advised numerous graduate students, and chaired the AI Science and Technology Advisory Committee at the American Meteorological Society. I have helped organize two Climate Informatics conferences, two Kaggle contests and multiple sessions at American Meteorology Society and IEEE conferences.

Research and Development Experience

- At The Climate Corporation, led the development of a real-time system whose estimates of rainfall were provably more accurate than anything else currently available. Uses Java, Python and stream processing on Amazon Web Services.

- Architect of the Warning Decision Support System -- Integrated Information (http://www.wdssii.org/), a suite of multi-sensor machine-intelligence algorithms, tools and displays for research, weather analysis and severe weather warning decision-making. Uses C++, Java, J2EE, XML, and network programming on Linux.

- Developed around a hundred of the algorithms that comprise the WDSS-II product suite.

- For more detailed R&D work, please see list of publications on my website.

Advisory Boards

I serve on the following advisory boards:

- [University of Oklahoma Gallogly College of Engineering](#) Board of Advisors (2023-)
- [Allen Institute of Immunology](#) Science Advisory Board, which focuses on accelerating foundational research, developing standards and models, and cultivating new ideas to make a broad, transformational impact on science (2021-2022)
- [Conrad Blucher Institute](#) for Surveying and Science, which conducts innovative geospatial science research and serves as a focused resource area for geospatial datasets relevant to the coastal environment. (2017-)
- [Washington State University](#), Bachelors Degree in Data Analytics. This degree is offered jointly by the Department of Mathematics and Statistics and the School of Electrical Engineering and Computer Science at three campuses. (2017-)

Honors

- 2022, elected a Fellow of the American Meteorological Society, an honor given to only 0.2% of meteorology professionals.

- 2016 Larry R. Johnson group award from National Weather Association to recognize extraordinary accomplishments, which significantly contributed to operational meteorology.

- 2015 NOAA Silver Medal for science/engineering achievement in developing Multi-Radar Multi-Sensor, a system that helps forecasters manage the flood of weather data available to them.

- 2014 Elected Chair of the Artificial Intelligence Committee of the American Meteorological Society

- 2013 NOAA Technology Transfer Award for "leading the development of an on-demand, near real-time, web-based tool for tracking severe weather and hail swaths across the continental US."

- 2012 Innovator Award by the University of Oklahoma Office of Technology Development for developing "groundbreaking (WDSS-II) software [that] is used worldwide to ... make property and life-saving decisions in the event of hazardous weather".

- 2006 Nominated by National Severe Storms Laboratory for Presidential Early Career Award for Scientists and Engineers (PECASE)

- 2004 NOAA Tech Award for Best Presentation in the category of Technology Transfer to Operations: "Real-time Dissemination of WSR-88D Radar Data over Internet2."

- 1993 University Fellow, The Ohio State University, 1993-94.

- 1993 Third in the IIT, Madras Department of Electrical Engineering (of 75 students: top 5%) in 1989-1993.

- 1989 Named among the top 1% of Indian high school graduates.