

# Valliappa Lakshmanan (Lak)

**Data, Analytics, and Machine Learning Professional Services**

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## Employment History

**2016-Present:** As a **Technical Lead** for the **Google Cloud Platform** (Professional Services), my mission is 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).

**2014-Present:** As **Director** of Meteorology in the Data Science unit of the **Climate Corporation**, I lead 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.

**2010-2014** (Part-time): As **Curriculum Dean** at **ROI Training**, a training company that provides new hire training in the financial industry, I developed new Java and Big Data courses. I also managed considerable growth in programs and instructors while maintaining the quality of coursework and instruction.

**1994-1995** (Graduate student): As **Research Associate** at the **Cleveland Clinic**, I developed an image processing and visualization technique to automatically identify 2D cross-sections of the mitral valve in ultrasound images and to render animated 3D views fast enough to view interactively.

## 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](#), O'Reilly Media, Inc., 2017. ISBN: 9781491974551
- 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/>
- Developed Java open-source package for automated analysis of spatial grids:<http://github.com/lakshmanok/asgbook>
- Software design, architecture, implementation and technical leadership experience using Object-Oriented methods.
- An expert in Java and C++; fluent in Python.
- Instructor/author of technology training courses on Hadoop, PIG, Spring Framework, Java security, Java Best Practices, JEE/J2EE Design Patterns, Java and XML, Object Oriented Design Patterns, Introductory Java Programming, Advanced C++ Programming and Design, Service Oriented Architectures and XML Web Services

## Leadership Experience

- 2016-Present: 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](#).

## Honors

- 7 peer awards (for going above and beyond the call of duty), 3 kudos (public notes of appreciation) and 1 spot bonus (for highly impactful work) at Google.
- 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.