

David Sathiaraj

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Education

- **PhD, Computer Science and Engineering,**
Louisiana State University (LSU), Baton Rouge, LA, 2013
Specialization: AI and Machine Learning, Data Visualization, Big Data Analytics
 - **MS, Computer Science, Louisiana State University,** Baton Rouge, LA
 - **MS, Industrial Engineering, Louisiana State University,** Baton Rouge, LA
 - **Osmania University,** Hyderabad, India
B.E., Mechanical Engineering
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Work Experience

- **CEO and Co-founder, Bristol AI Corporation** October 2025–Present
San Diego, CA
 - Co-founded and started an AI-Native Technology firm focussed on defense, government, healthcare and insurance verticals
- **Director of Data Science, Trabus Technologies** Jan 2020–October 2025
San Diego, CA
 - Founded and scaled the AI/ML division to 10+ engineers, securing \$2.5M in annual contracts over five years across environmental informatics, transportation, cybersecurity, and wireless technologies.
 - Led development of ORCA, an AI/ML ecosystem for predictive maintenance of U.S. Navy COLUMBIA-class submarines, enabling rapid decision-making during maintenance periods.
 - Directed AI-driven Waterway Information and Management System (WIMS) for 25 U.S. container ports, providing logistical insights.
 - Spearheaded AI-based gunshot detection system for Texas public schools, integrating models on edge hardware and developing a mobile app.
 - Guided development of RippleGo, Trabus' first commercial AI-based voyage planner for U.S. inland waterways.
 - Oversaw River Information Services Enterprise (RISE), developing AI tools for lock status analysis and river level management for U.S. Army Corps of Engineers.
 - Led research on solar glare and weather impacts on pedestrian crashes with Texas Transportation Institute.
 - Established DevSecOps and automated provisioning for U.S. Army's Labyrinth Cybersecurity program.
 - Launched NOAA-funded Southern Regional Climate Center at Texas A&M, including a 24/7

data portal and operational center.

- Developed Hydrological and Environmental Data Repository (HEDR) with GraphQL API for river and environmental data.

- **Adjunct Professor, Point Loma Nazarene University** Jun 2022–Present
Dept. of Mathematics, Information & Computer Science San Diego, CA
 - Designed and taught senior-level data science course, covering Python, data acquisition (PostgreSQL, MongoDB, Redis), web frameworks (Django), analytics (pandas, NumPy, SciPy), and ML/DL (Keras, TensorFlow, scikit-learn).
- **Adjunct Professor, San Diego State University** Sep 2021–Present
Geovisualization Center San Diego, CA
- **Chief Technology Officer, I Hate Receipts Inc.** Oct 2018–Oct 2019
Austin, TX
 - Led technology team for FinTech e-receipts platform, developing MVP from concept to deployment on iOS App Store and Google Play Store.
- **Assistant Professor, Louisiana State University** Apr 2015–Aug 2020
Geography & Anthropology Baton Rouge, LA
Associate Director, NOAA Southern Regional Climate Center Aug 2013–Aug 2020
Baton Rouge, LA
 - Developed computational geosciences curriculum focused on big data, environmental informatics, and transportation.
 - Managed 24/7 climate data warehouse for NOAA's Southern Regional Climate Center, overseeing IT infrastructure and data products.
 - Designed 40 Gbps Science DMZ network for big data transmission between LSU and partner sites.
 - Created AI and ML platforms for predictive analytics in weather, river stages, and healthcare with LSU Health Sciences Center.
 - Led development of Applied Climate Information System (ACIS), a nationwide climate data service with APIs for government and industry.
- **Founder and CEO, Pecan Analytics** Jun 2015–Dec 2019
Baton Rouge, LA
 - Founded and scaled a data analytics startup, securing \$43,930 LIFT² grant for patented technologies in healthcare, cybersecurity, and political analytics.
 - Developed ML and visual analytics platforms for political campaigns, supporting successful 2014 and 2016 congressional campaigns.
- **IT Manager, NOAA Southern Regional Climate Center** Aug 2009–Jul 2013
Baton Rouge, LA

- Led development of climate data products and visualization tools using Python, Redis, PostgreSQL, and MongoDB.
- Designed analytics platforms for storm surge, extreme weather, and reservoir management, collaborating with DOE and insurance companies.

- **Application Systems Engineer, NOAA Southern Regional Climate Center** Jun 2001–Aug 2009
Baton Rouge, LA

- Developed data ingest and analytics tools for climate data using Python, PostgreSQL, and NetCDF.
- Built GIS and web-based analytics platforms for Northrop Grumman’s decision support systems.

Patents and Selected Publications

- D. Sathiaraj, E.V. Rohli, N. Woolsey. Artificial-intelligence-based prediction of storage capacities in water reservoirs. *U.S. Patent App. 18/439,496*, 2024.
- D. Sathiaraj et al. RippleGo: An AI-based voyage planner for U.S. inland waterways. *2023 IEEE Conference on Artificial Intelligence*, 372–373, 2023.
- E. Rohli, N. Woolsey, D. Sathiaraj. Near-term forecasting of water reservoir storage capacities using long short-term memory. *Environmental Data Science*, 2, e30, 2023.
<https://doi.org/10.1017/eds.2023.25>
- D. Sathiaraj et al. Artificial-intelligence-based waterway information system. *U.S. Patent 11,620,523*, 2023. <https://patents.google.com/patent/US20220245456A1>
- J. Celano, D. Sathiaraj. Predictive analytics-based U.S. inland waterways voyage planning analysis tool (VPAT). *Technical Report, Department of Energy*, 2021.
- D. Sathiaraj, X. Huang, J. Chen. Predicting climate types for the continental United States using unsupervised clustering techniques. *Environmetrics*, 30:e2524, 2019.
- D. Sathiaraj et al. Data-driven analysis on the effects of extreme weather on traffic volume in Atlanta, GA, USA. *Computers, Environment and Urban Systems*, 72, 212–220, 2018.

Selected Conferences

- D. Sathiaraj. Prediction of river stages along U.S. inland waterways using deep neural nets. *101st American Meteorological Society Annual Meeting*, 2021.
- D. Sathiaraj. Interactive climate data analytics for hazards mitigation, planning, and emergency management. *Climate Informatics*, 2013.
- H. Needham, B.D. Keim, D. Sathiaraj, M. Shafer. Storm surge return periods for the U.S. Gulf Coast. *ATC-SEI Advances in Hurricane Engineering Conference*, 2012.

Theses

- D. Sathiaraj. On identifying critical nuggets of information during classification tasks. *Ph.D. Dissertation*, Louisiana State University, 2013.

- D. Sathiaraj. Evaluation of surface-fitting algorithms for reverse engineering of free-form surfaces. *M.S. Thesis*, Louisiana State University, 2000.
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Grants and Contracts

- Principal Investigator, U.S. Navy contract for AI-based submarine maintenance models, 2023–Present, \$2,250,000/year.
 - Principal Investigator, U.S. Department of Transportation contract for port analytics and logistics, 2024–Present, \$125,000/year.
 - Principal Investigator, Gunshot detection system contract, \$400,000/year.
 - Co-Principal Investigator, U.S. Army Corps of Engineers River Information Services Enterprise, 2017–Present, \$5,000,000.
 - Principal Investigator, NOAA Southern Regional Climate Center sub-contract with Texas A&M, 2021–2026, \$1,400,000.
 - Co-Principal Investigator, NOAA RISA grant, 2018–2022, \$2,600,000.
 - Principal Investigator, LIFT² grant for data science and visual analytics, 2015, \$43,930.
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Technology Stack

Languages: Python, JavaScript, C, PHP, Go, R, SQL, Bash/Zsh

Visualization: D3.js, Mapbox/Leaflet.js, Matplotlib, Plotly, GDAL

Databases: AWS Redshift, AWS RDS, MongoDB, Redis, InfluxDB, PostgreSQL, MySQL

Web Frameworks: Django, Flask, Tornado, React

GIS: PostGIS, QGIS

API: REST, GraphQL

DevOps: GitHub Runner, Ansible, Docker, Kubernetes

Web Servers: Apache, Nginx

Libraries: Keras, TensorFlow, scikit-learn, pandas, NumPy, SciPy, SQLAlchemy, jQuery

Cloud: AWS (Lambda, RDS, S3, EC2), Digital Ocean

Selected Projects and Links

- Trabus AI/ML Division: <https://www.trabus.com/ai>
 - Waterway Information and Management System: <https://wims.trabusrise.com>
 - RippleGo Voyage Planner: <https://ripplego.com>
 - Southern Regional Climate Center: <https://www.srcc.tamu.edu>
 - Applied Climate Information System: <http://www.rcc-acis.org>
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Awards and Certifications

- Professional Scrum Master, Scrum.org, Jan 2022.
- Amazon Research Award, AWS Cloud Credits, Fall 2018.

- LIFT² Grant, Louisiana Technology and Research Foundation, Fall 2015.